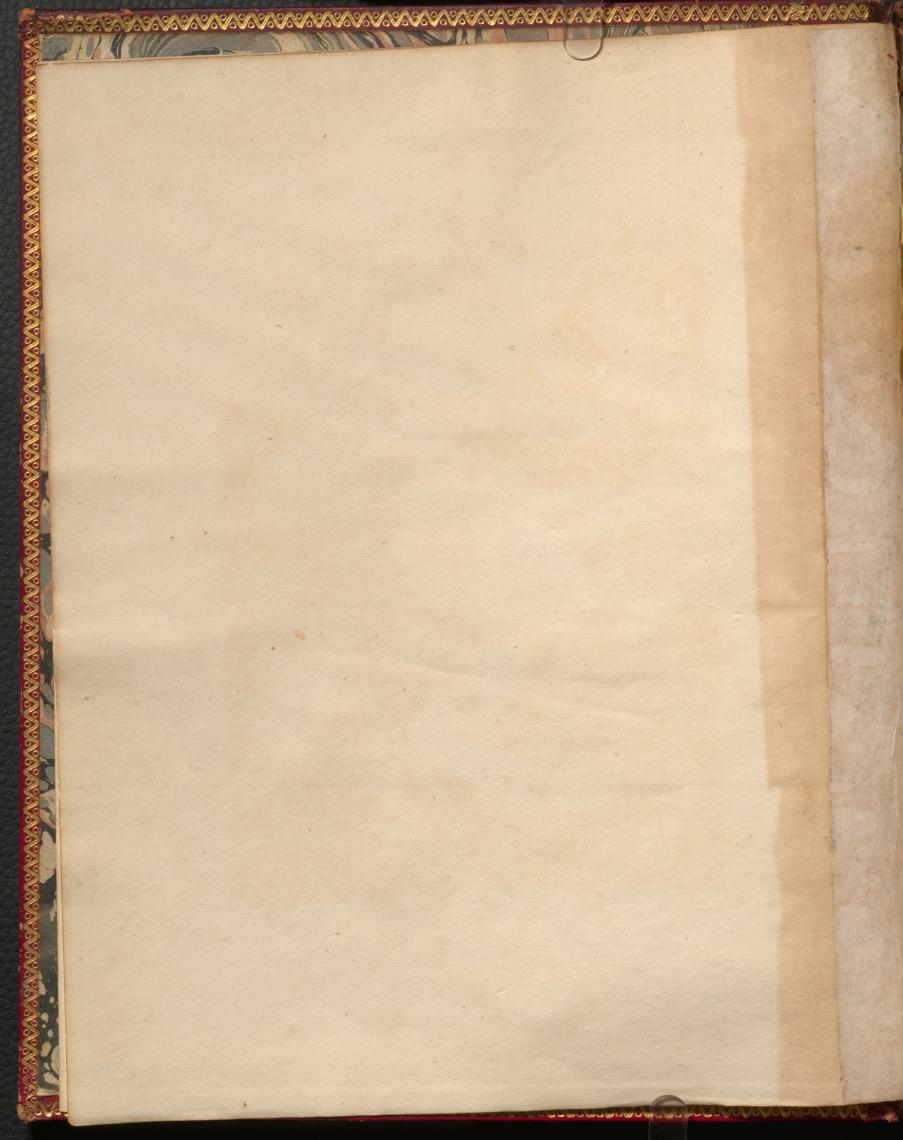
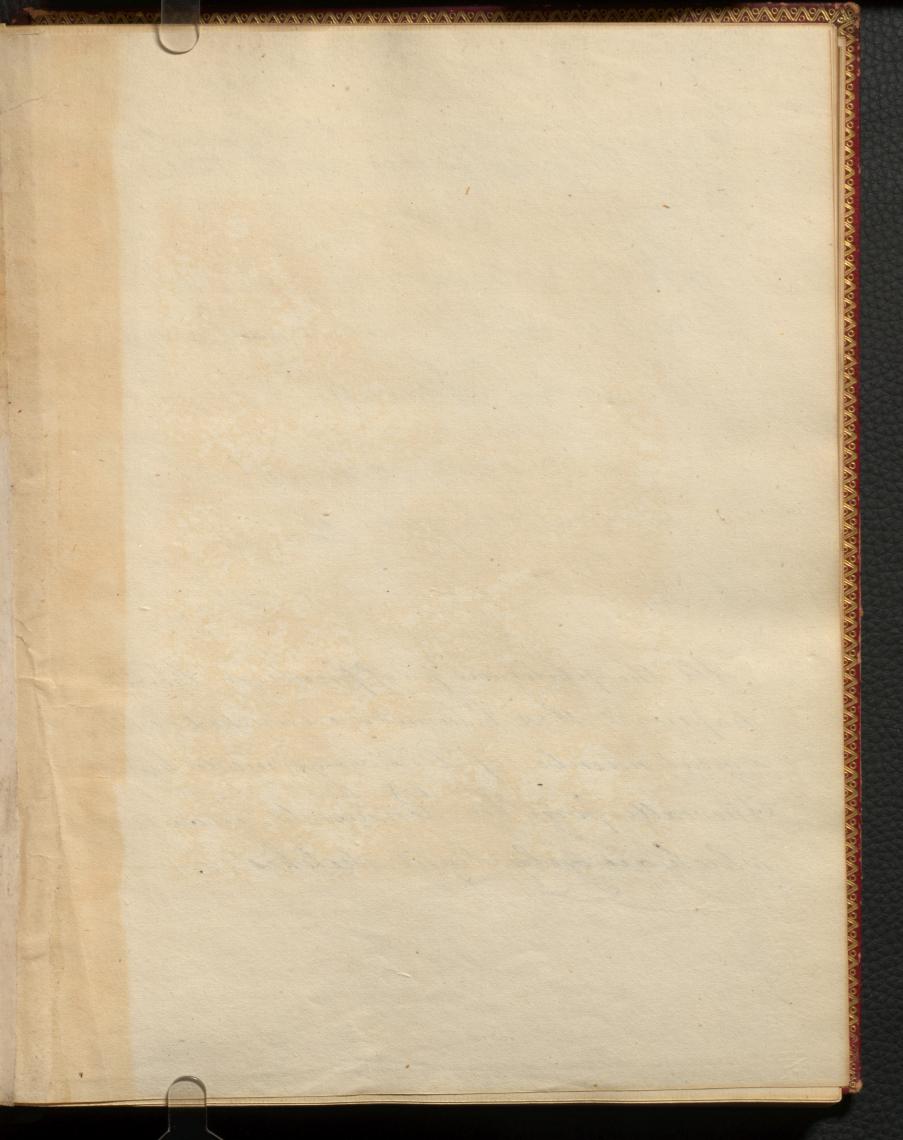
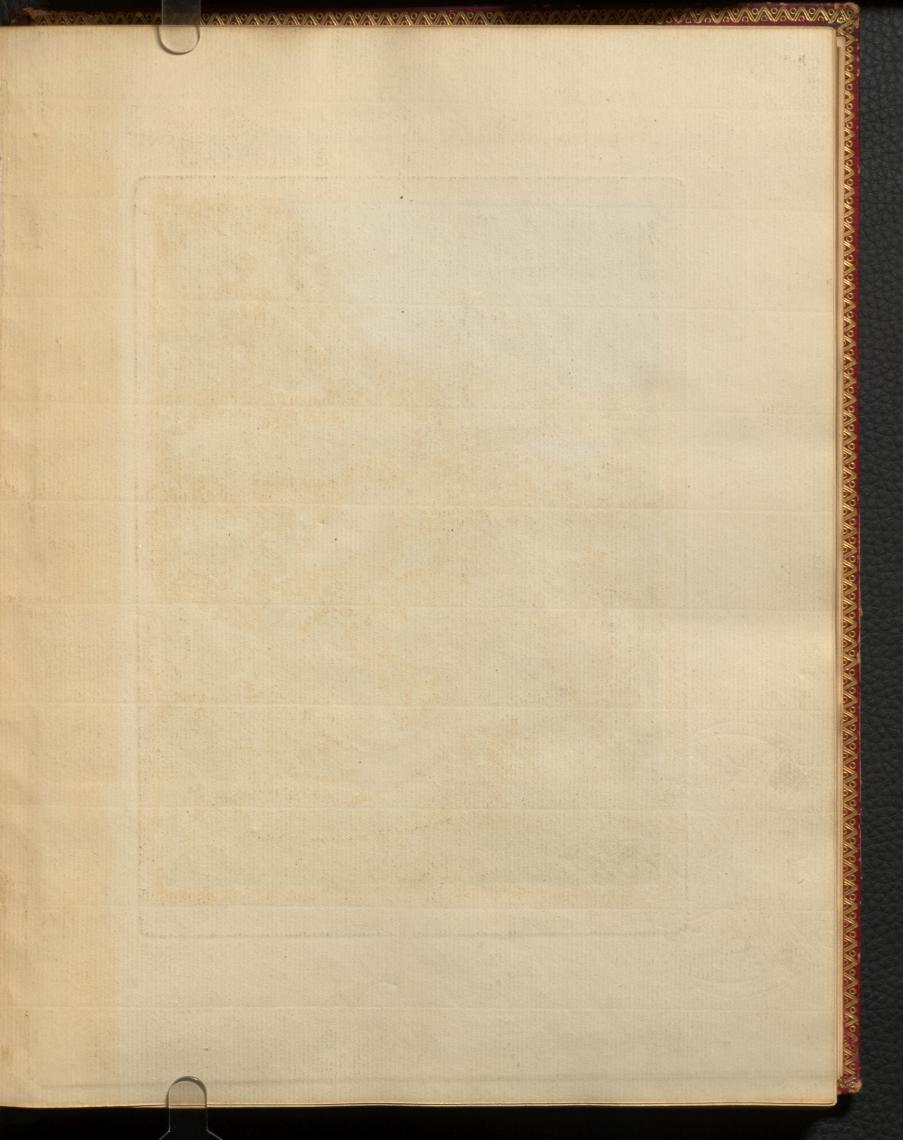


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FRONTISPIECE

Vol. I.



P Paillore pinx.

## INTRODUCTION

TO THE

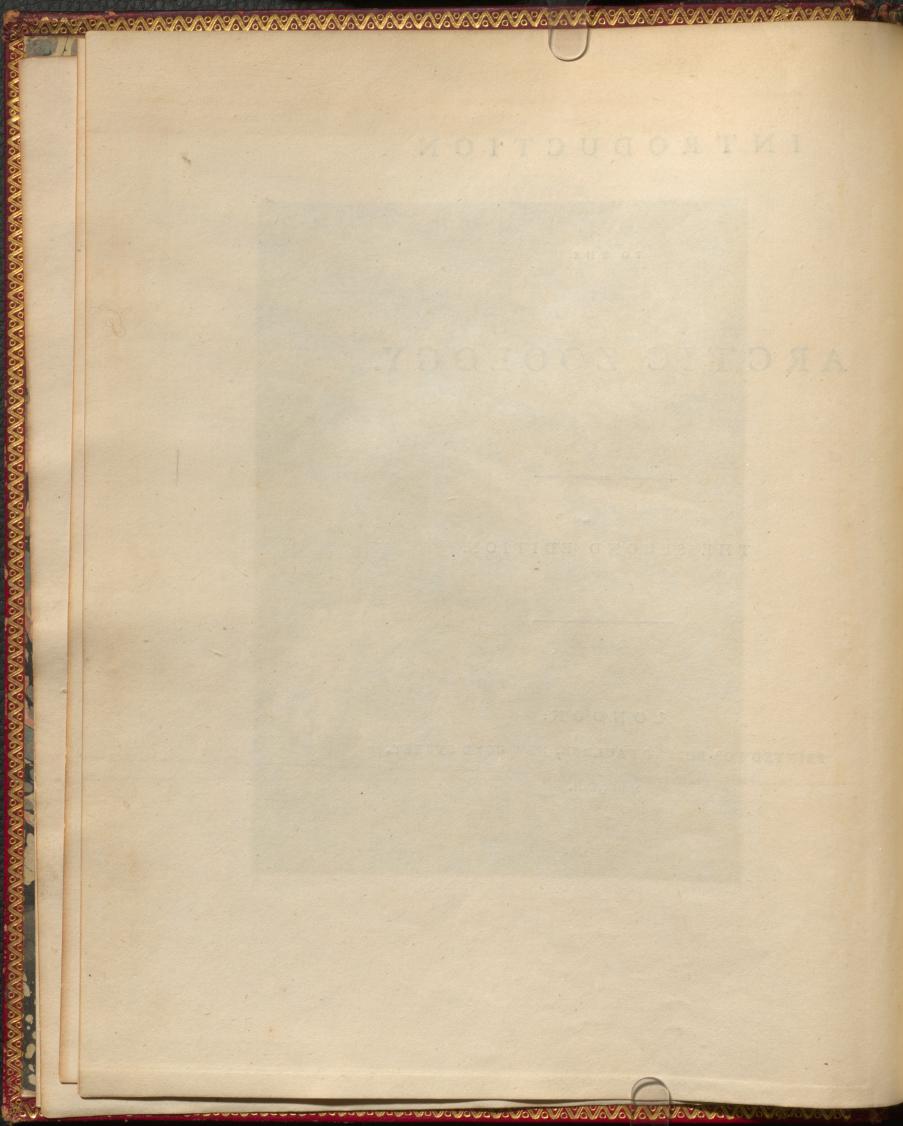
## ARCTIC ZOOLOGY.

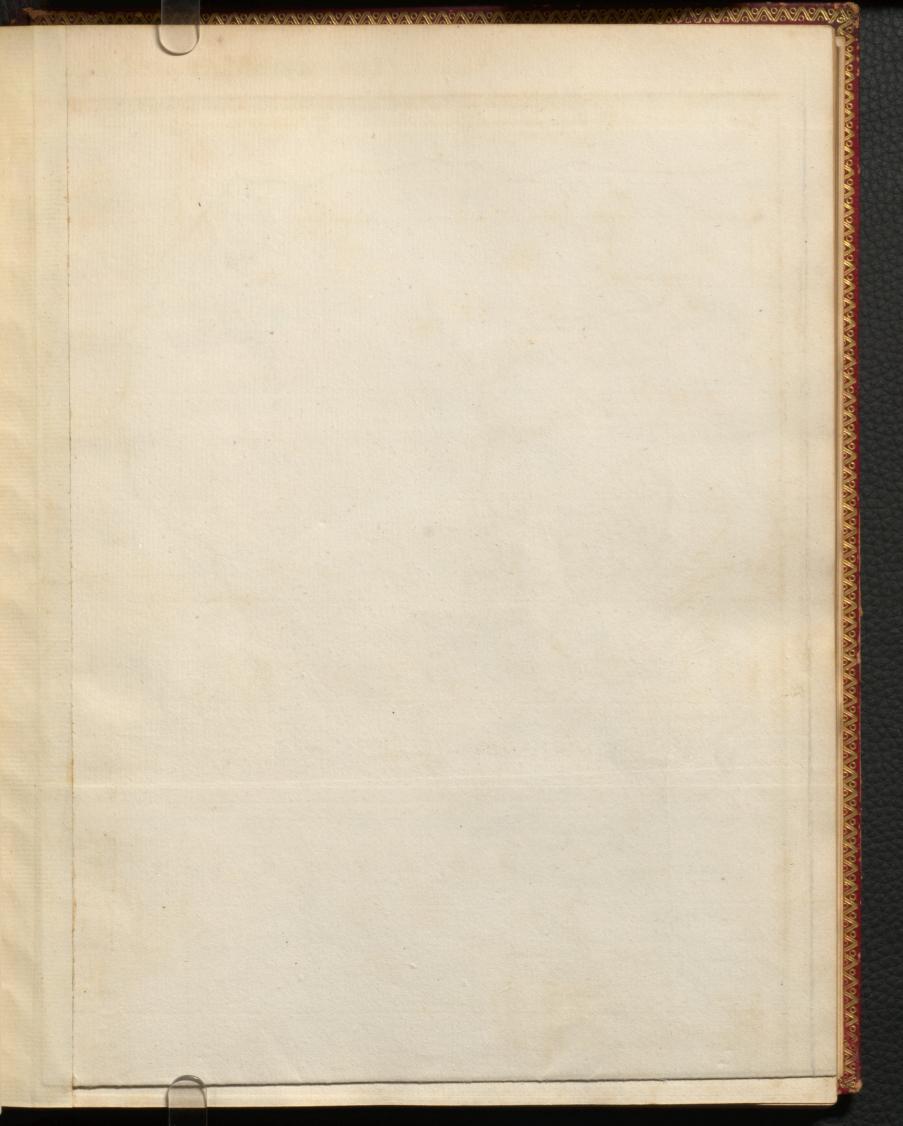
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PRINTED FOR ROBERT FAULDER, NEW BOND STREET.

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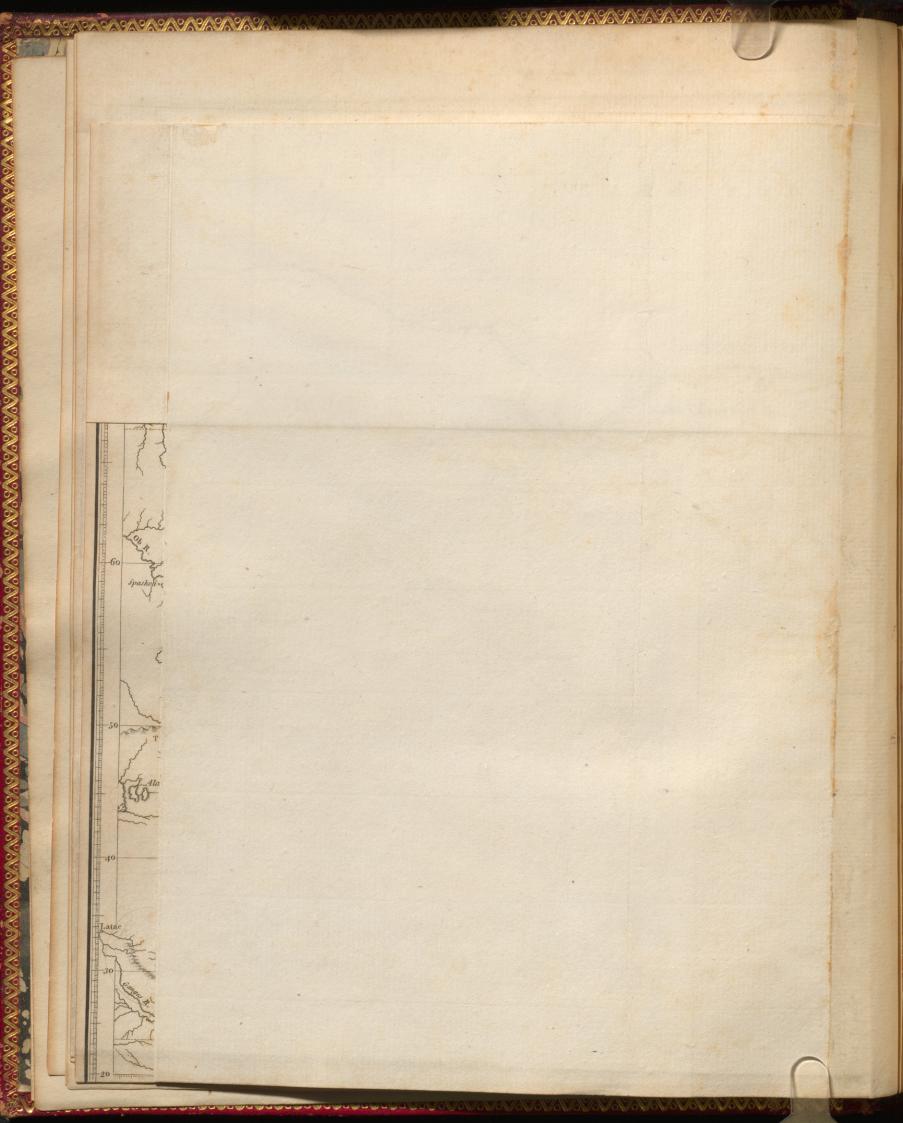
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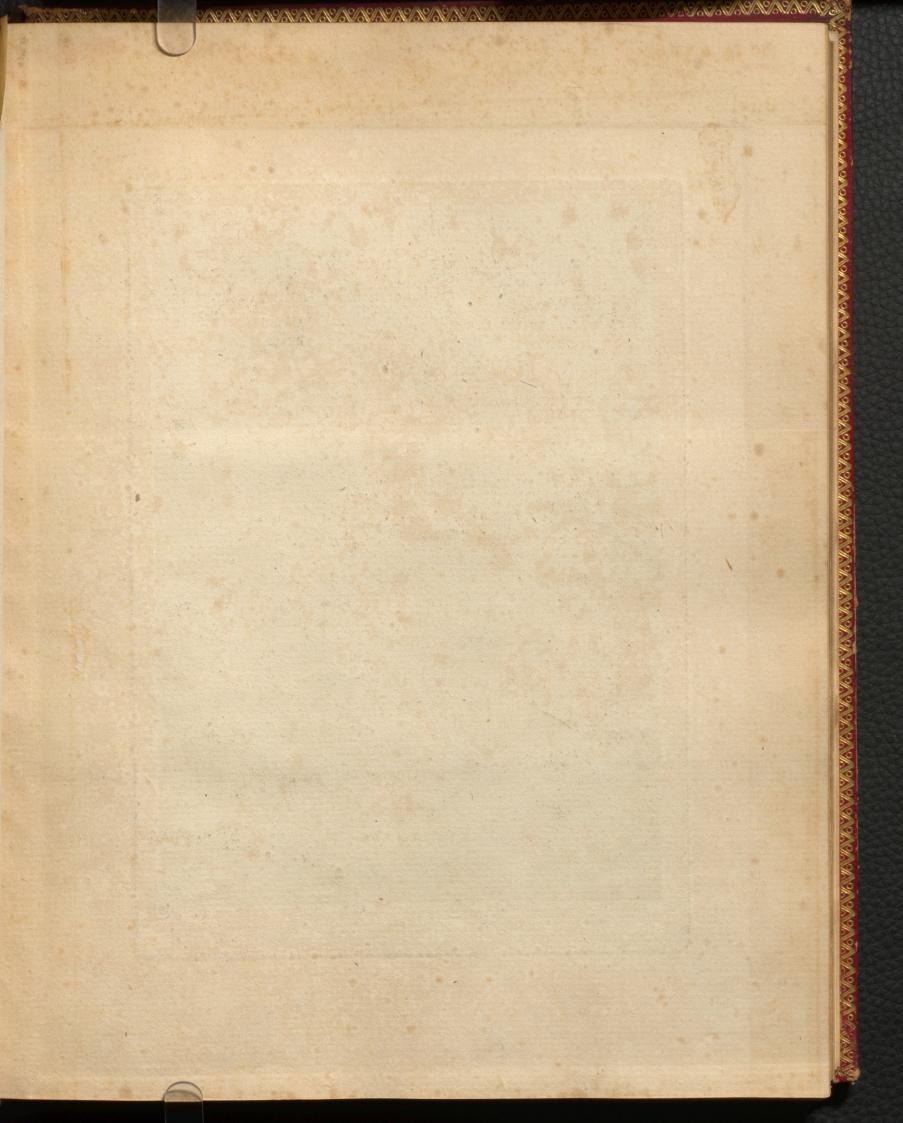


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# MAP of MR PENNANT'S ARCTIC ZOOLOGY. EA OR BAFFIN'S BAY N 0 R R H E C. Mendoei Pto de la Trinidad 0 C Ast Maria la Gora? TROPIC OF CANCER SANDWICH ISLES







# THE ROYAL ACADEMIES OF SCIENCES

OF

STOCKHOLM, UPSAL, AND LUND,
IN SWEDEN,

AND OF

DRONTHEIM IN NORWAY,

THIS VOLUME IS DEDICATED,

AS A GRATEFUL ACKNOWLEGEMENT

OF THE UNCOMMON INSTRUCTION RECEIVED,

AS WELL FROM THEIR PRIVATE CORRESPONDENCE

AS THEIR PUBLIC LABORS,

BY HIM, WHO HAS (BY THEIR PARTIALITY)

THE HONOR OF SUBSCRIBING HIMSELF

THEIR BROTHER MEMBER,

AND DEVOTED HUMBLE SERVANT,

DOWNING, MARCH 1, 1788.

THOMAS PENNANT,

LL.D. F.R.S. F.S. NAT. HIST. and ANTIQ. EDINBURGH and PERTH, and F.S. RURAL OECON. of ODIHAM.

HIS Work was begun a great number of years past, when the empire of Great Britain was entire, and poffessed the northern part of the New World with envied splendor. At that period I formed a defign of collecting materials for a partial History of its Animals; and with true pains, by various correspondences, made far greater progress in my plan than my most sanguine expectations had framed. Above a century ago, an illustrious predecessor in the line of Natural History, who as greatly exceeded me in abilities as he did in zeal, meditated a voyage to the New World, in pursuance of a fimilar defign. The gentleman alluded to was FRANCIS WILLUGHBY, Esq; who died in 1672, on the point of putting his defign in execution. Emulous of fo illustrious an example, I took up the object of his pursuit; but my many relative duties forbade me from carrying it to the length conceived by that great and good man. What he would have performed, from an actual inspection in the native country of the feveral subjects under consideration, I must content myself to do, in a less perfect manner, from preserved specimens transmitted to me; and offer to the world their Natural History, taken from gentlemen or writers who have paid no small attention to their manners.

Let me repeat, that this Work was designed as a sketch of the Zoology of North America. I thought I had a right to the a 2 attempt,

attempt, at a time I had the honor of calling myfelf a fellowsubject with that respectable part of our former great empire; but when the fatal and humiliating hour arrived, which deprived Britain of power, strength, and glory, I felt the mortification which must strike every feeling individual at losing his little share in the boast of ruling over half of the New World. I could no longer support my clame of entitling myself its humble Zoologist: yet, unwilling to fling away all my labors, do now deliver them to the Public under the title of the ARCTIC ZOOLOGY. I added to them a description of the Quadrupeds and Birds of the north of Europe and of Afia, from latitude 60 to the farthest known parts of the Arctic World, together with those of Kamtschatka, and the parts of America visited in the last voyage of the illustrious Cook. These additional parts I have flung into the form of an Appendix to each genus, and distinguished by a fleur de lis; and the species by literal instead of numeral marks, which distinguish those of North America. These will, in a great measure, shew the dilatation of Quadrupeds and Birds, and the migrations of the feathered tribe, within part of the northern hemisphere. The state of the northern hemisphere.

I have, whenever I could get information, given their respective residences, as well as migrations to far more northern parts, to shew to what very remote places the Author of Nature hath impelled them to retire, to breed in security. This wise provision preserves the species entire, and enables them to return by myriads, to contribute to the food or luxuries of southern climates. Whatever is wanting in the American part, I may foresee, will in time be amply supplied. The powers of literature already begin to arise. Two volumes of Memoirs have already appeared, which do infinite honor to the Academy which gave them

them birth. The labors of the Reverend Mr. Manasseb Cuttler, Professor Williams, and Mr. Alexander, have been of no small utility to some of the following pages.

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To enlarge the American Zoology as much as possible, I have in the late Supplement flung the Reptiles and the Fishes of the northern part of that vast continent into a systematic form; and, by permiffion of Mr. Benjamin White, have added, from the labors of the learned John Reinhold Forster, the Catalogue of the Infects of North America. How small a part is this of the Zoology of our lost dominions! May what I have done be an inducement for some learned native to resume the subject! and I shall without envy see my trivial labors lost in the immensity of new discoveries. Vain thought! for ages must pass, ere the necessary perfection can be given, ere the animated nature which fills the space between the Atlantic and Pacific oceans can be investigated. Ages must pass, before new colonization can push its progress westward: and even then, civilization, ease, and luxury, must take place, ere these studies, in which use and amusement are so intimately blended, can be carried into full effect.

But in the interim, let the American philosopher do what is in his power; let him search the ill-explored seas, lakes, rivers, and forests of his country; and his labors will be amply repayed. The tract between the Allegany or Apalachian chain and the ocean, will for the present be ample field for the most adventurous naturalist. Let me entreat him to be expeditious, that I may have some chance of receiving the pleasure of knowing that I could animate any one to these laudable pursuits. But my electrical fire is too weak to be felt at such a distance: I want the potent emanations of a Linnæus, which dart from pole to pole.

pole. My faculty has been various: in a few inftances I may have been fortunate enough to have met with, at home and abroad, some excellent conductors, which have caught and carried on the impulsive stroke; which have at lest roused Natural History from the palsied state into which it was falling, on the loss of its illustrious support.

I must reckon among my most valued correspondents on the New Continent, Doctor ALEXANDER GARDEN\*, who, by his long residence in South Carolina, was enabled to communicate to me variety of curious remarks and subjects, as will appear in the following pages.

To the rich museum of American Birds, preserved by Mrs. Anna Blackburn, of Orford, near Warrington, I am indebted for the opportunity of describing almost every one known in the provinces of Jersey, New York, and Connecticut. They were sent over to that Lady by her brother, the late Mr. Ashton Blackburn; who added to the skill and zeal of a sportsman, the most pertinent remarks on the specimens he collected for his worthy and philosophical sister.

In the foremost rank of the philosophers of the Old Continent, from whose correspondence I have benefited, I must place Doctor Peter Sim. Pallas, at present Professor of Natural History in the service of the illustrious Empress of Russia: he not only savored me with the fullest remarks on the Zoological part of that vast empire, most of which he formed from actual travel and observation, but collected for my use various other remarks from the manuscripts of his predecessors; especially what related to Kamtschatka from those of Steller; which

Now resident in London.

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have affished me in the history of parts hitherto but very slightly understood.

From the correspondency and labors of Mr. EBERH. Aug. WILLIAM ZIMMERMAN, Professor of Mathematics at Brunfwic, I have met with most uncommon instruction. His Specimen Zoologiæ Geographicæ Quadrupedum \* is a work which gives a sull view of the class of Quadrupeds, and the progress they have made in spreading over the face of the earth, according to climates and latitudes. Their limits are described, in general, with uncommon accuracy. Much is said of the climates themselves; of the varieties of mankind; of the effects of heat and cold on them and other animals. A most curious map is joined to the work, in which is given the name of every animal in its proper climate; so that a view of the whole Quadruped creation is placed before one's eyes, in a manner perfectly new and instructive †.

To the following foreigners, distinguished for their literary knowledge, I must pay my best acknowledgement for variety of most useful communications: Mr. Samuel Oedman of Wermdon near Stockholm has with the utmost liberality spontaneously sent to me a number of valuable remarks on the Quadrupeds,

Birds,

a 4

<sup>\*</sup> A quarto in Latin, containing 685 pages, printed at Leyden, 1777; fold in London, by Mr. Faden, Geographer, St. Martin's Lane.

<sup>†</sup> A new edition of the map has been lately published by the learned Author; the geographical part is corrected according to the late voyages of Captain Cook, and great additions made to the zoological part. An explanation is given, in the third volume of the Zoologia Geographica, lately published in German by the Author.

Birds, and Trees of Sweden, which the reader will find the benefit of in the course of this volume.

I must by no means be silent respecting the instructive favors I have received from Doctor Charles P. Thunberg, of Upsal; Doctor Anders Sparman, of Stockholm; Mr. And. J. Retzius, Professor of Natural History at Lund; and the late Mr. Otho Muller, Author of the Zoologia Danica, of Copenhagen; and let me add my great obligations to the labors of the Reverend Mr. Otto Fabricius, for his most finished Fauna of Greenland.

To many of my countrymen my best acknowledgments are due for literary assistances. Sir Joseph Banks, Baronet, will, I hope, accept my thanks for the free admittance to those parts of his cabinet which more immediately related to the subjects of the following sheets.

To the late Sir Ashton Lever, Knight, I was highly indebted, for the more intimate and closer examination of his treasures than was allowed to the common visitors of his most magnificent museum. His zeal in collecting was equalled by his success: his reward inadequate to his merit: no one ever offered such instructive riches to the lovers of Natural History, and none met with equal neglect. No kingdom ever possessed from his labors such advantages; and I believe no kingdom ever reaped less advantage from them.

To the late Mr. THOMAS HUTCHINS, a gentleman greatly distinguished for his philosophical enquiries, I was unspeakably obliged for his judicious remarks made during sixteen years re-

fidence

sidence in Hudson's Bay, of which he most liberally indulged me with the perusal.

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To Mr. Samuel Hearne, the great explorer by land of the Icy Sea, I cannot but send my most particular thanks, for his liberal communication of many zoological remarks, made by him on the bold and fatiguing adventure he undertook from Hudson's Bay to the ne plus ultra of the north on that side.

Mr. Andrew Graham, long a resident in Hudson's Bay, obliged me with numbers of observations on the country, and the use of multitudes of specimens of animals transmitted by him to the late Museum of the Royal Society, at the instance of that liberal patron of science, my respected friend the Honorable Daines Barrington.

The Reverend Mr. WILLIAM COXE enriched me with numbers of observations collected in his well-known travels, or translated for my use from the several authors who have treated of the Antiquities or Natural History of the north.

Let me close the list with acknowledging the great affistance I have found in the Synopsis of Birds by Mr. John Latham; a work now brought to a conclusion, and which contains a far greater number of descriptions than any which has gone before. This is owing not only to the affiduity of the Author, but also to the peculiar spirit of the English nation, which has, in its voyages to the most remote and most opposite parts of the globe, payed attention to every branch of science. Let me add also, that most comprehensive work of his, the Index Ornithologicus. The advantages are pointed out by the able pen of the Reverend Doctor

Doctor Douglas\*, in his Introduction to the last Voyage of our great navigator, published (under the auspices of the Lords of the Admiralty) in a manner which reflects honor on our country in general, and will prove a most lasting monument to the memory of the great Officer who so unfortunately perished by savage hands, and his two able consorts, who at length sunk beneath the pressure of fatigue, in carrying the glory of discovery far beyond the attempts of every preceding adventurer.

I have been often reproached for not giving a map with the Arctic Zoology. The reader is now prefented with two, which were given with the Supplement to the first edition. These were done by that excellent artist Mr. William Palmer, the engraver of those in Captain Cook's last voyage; and of an admirable map of the American and Afiatic part, formed by the much lamented, the late Captain JAMES KING. These maps have been the foundation of mine; with certain additions from that which illustrates the voyage of Lord MULGRAVE towards the north pole. I have taken the liberty of making some slight alterations; and have made the addition of feveral names, peculiarly adapted to the work they are defigned to explain. In the present edition the map of North America has received confiderable improvements on the western side. I am much obliged to Captain Abraham Dixon for his valuable corrections; for he has given the recent discoveries made by himself, Captain Meares, and Captain Duncan. The coast from the Icy Cape to the mouth of the Copper Mine River, is laid down from imagination, and the same from thence to

\* Who now worthily fills the See of Salisbury.

Greenland,

Greenland, except in a few places where it had been flightly feen by navigators. A little to the east of the Copper Mine River, the fea is made to advance somewhat more inland, on a conjecture of Mr. Hearne's, that a river which falls into the Copper Mine River from the east, is much nearer to the fea than the mouth of the Copper River itself. I have been obliged to go far lower than lat. 60, to which I professedly designed to limit my northern enquiries: but had I, in my maps, rigidly adhered to that intention, I must have omitted great part of America, the glorious sield of the discoveries of our immortal Cook. Those of the Rushans are attended to, and nothing neglected that could sling light on the attempts of this busy age.

Downing, March 1, 1792.

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THOMAS PENNANT.

PLATES.

## PLATES.

RONTISPIECE, a winter scene in Lapland, with Aurora Borealis: the Arctic Fox, Ermine, Snowy Owl, and White Grous.

Tab.	I.	The Caves of Caussie in Murray -	_	XXIV
	11.	Rocks of fingular forms near Sandfide	-	IVXX
	III.	The Doreholm, a fmall isle, one of the Schetle	ands,	
		perforated with a vast arch —	4	XXXVI
	IV.	Bird-catching in one of the Orkney isles	-	XL
	V.	Antiquities — — —	-	XLIV

No I. A Burgh of the smallest kind, with a single cell.

II. The Burgh of Culfwick in Schetland, and a section of the wall.

III. The Burgh of Burrowfirth on Helinsta Voe, a holme or small isle among the Schetlands. It contains eleven cells.

IV. Burgh of Snaburgh in Unst, one of the Schetlands.

V. Burgh of Hog seter.

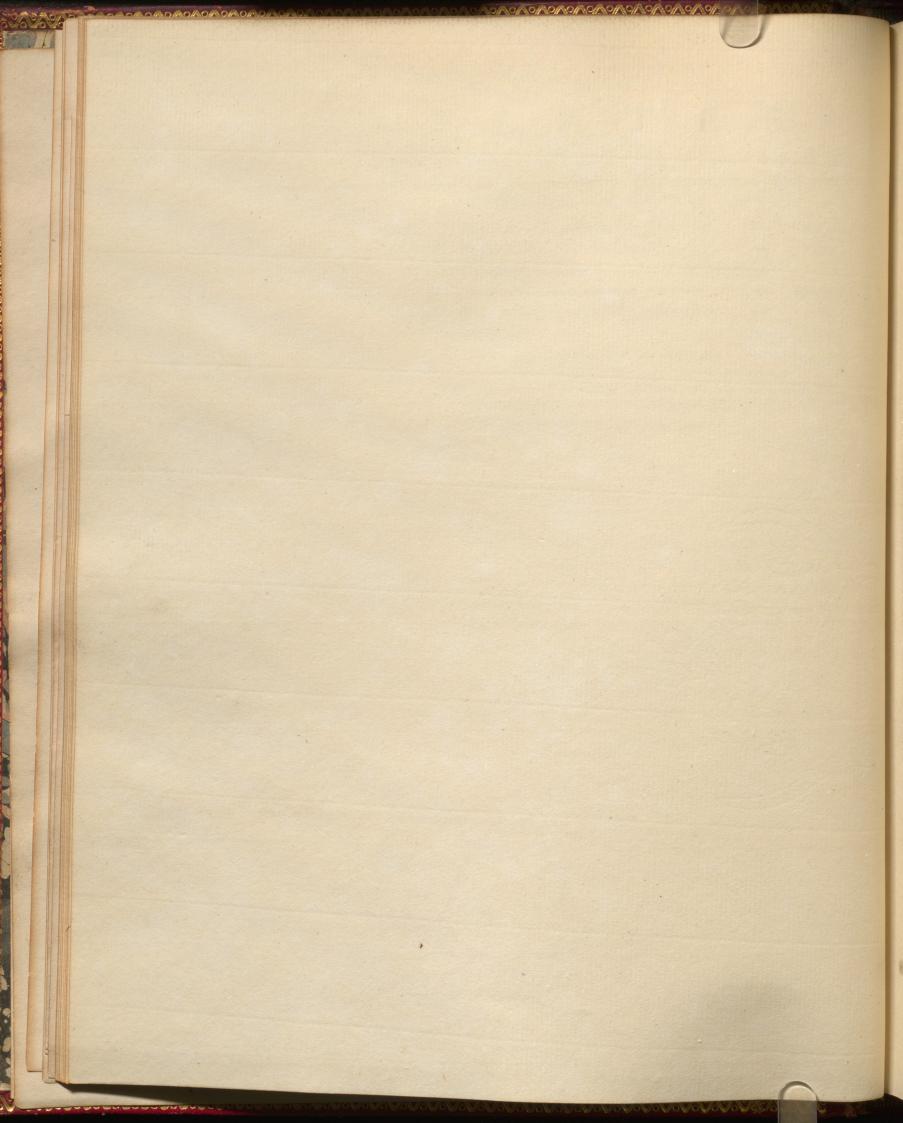
VI. Roman camp in Fettlar.

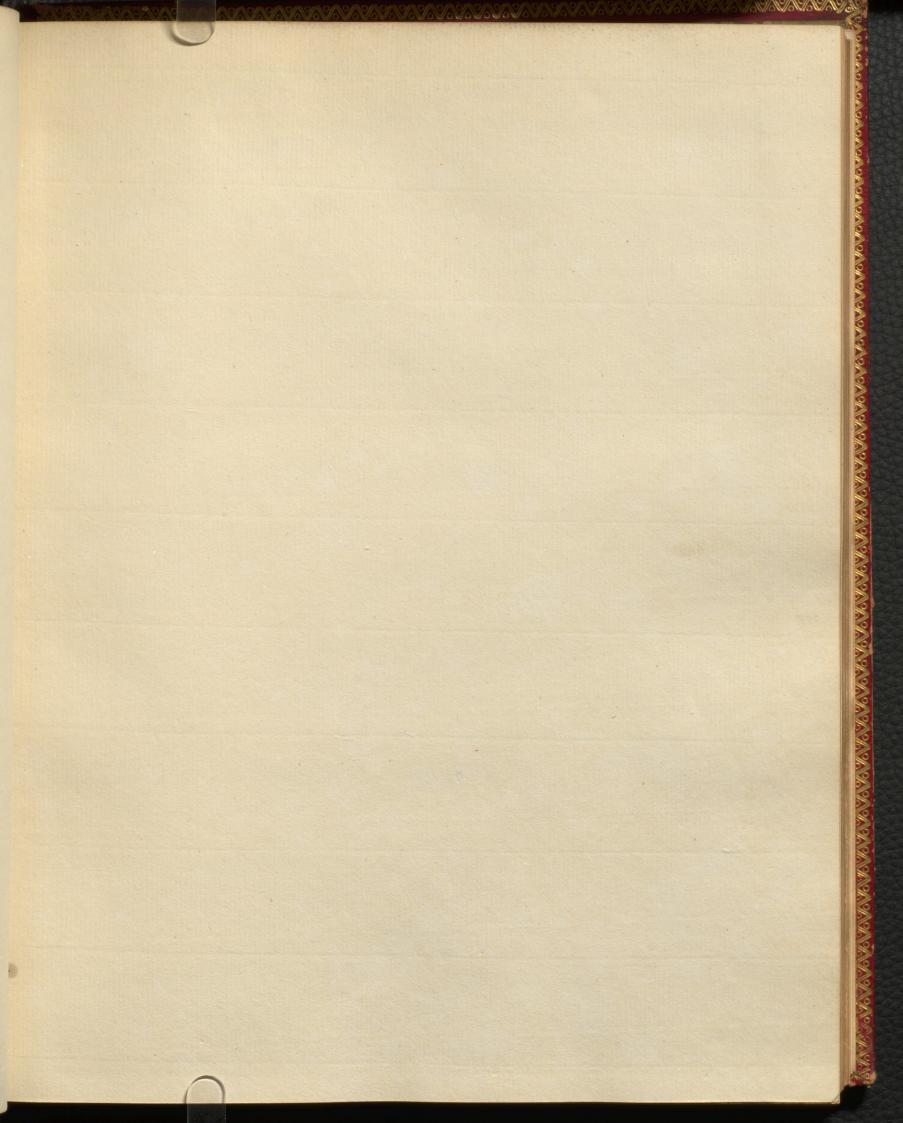
For the drawings from which these Antiquities were engraven, I am indebted to the Reverend Mr. Low, Minister of Birsa in Orkney, who, at my request, made the voyage of the Orkney and Schetland isles in 1778. He hath prepared his journal for the press: it is to be hoped, that the liberality of the public will enable him to give this addition to my labors, which will complete the account of the northern part of the British dominions.

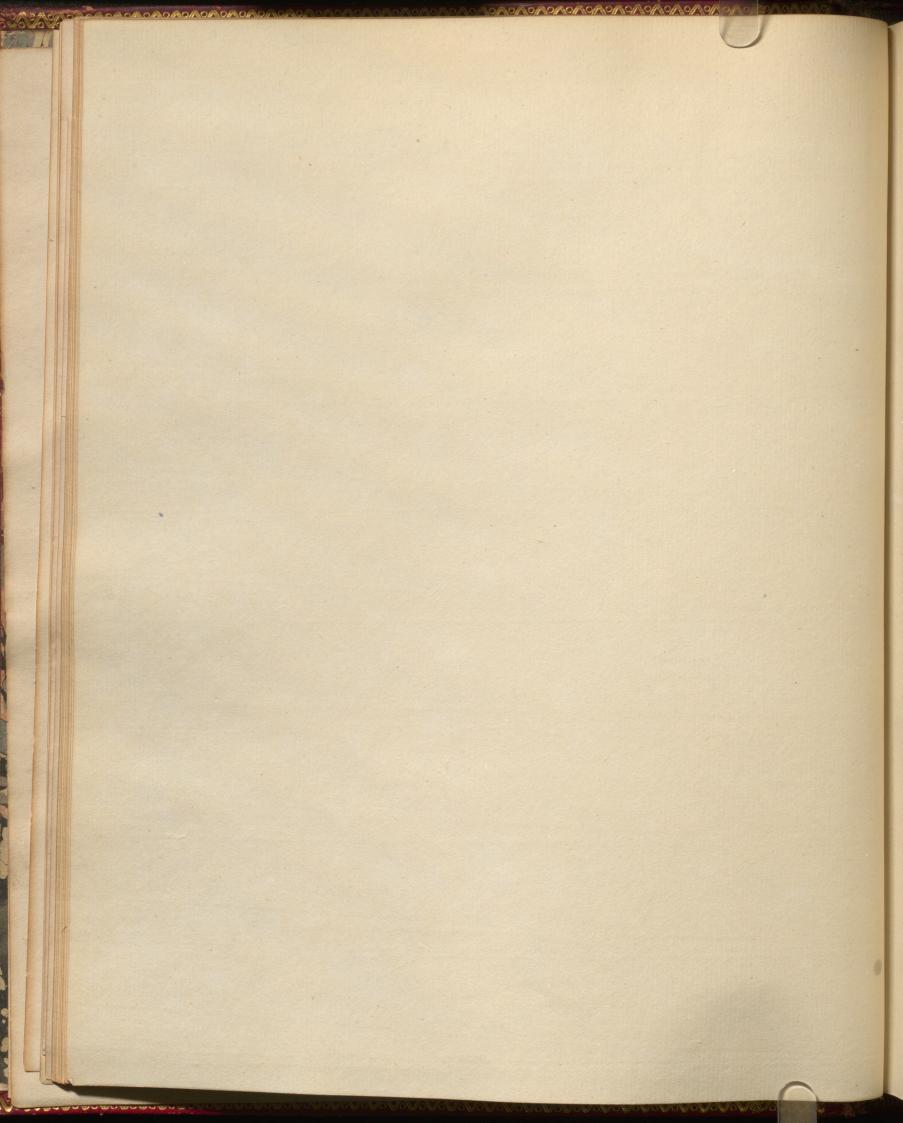
Tab. VI. The Bow described p. ccxxxix. The place it came from is uncertain; but doubtlessly from the part of the western coast of America frequented by the Walrus — ccxxxix

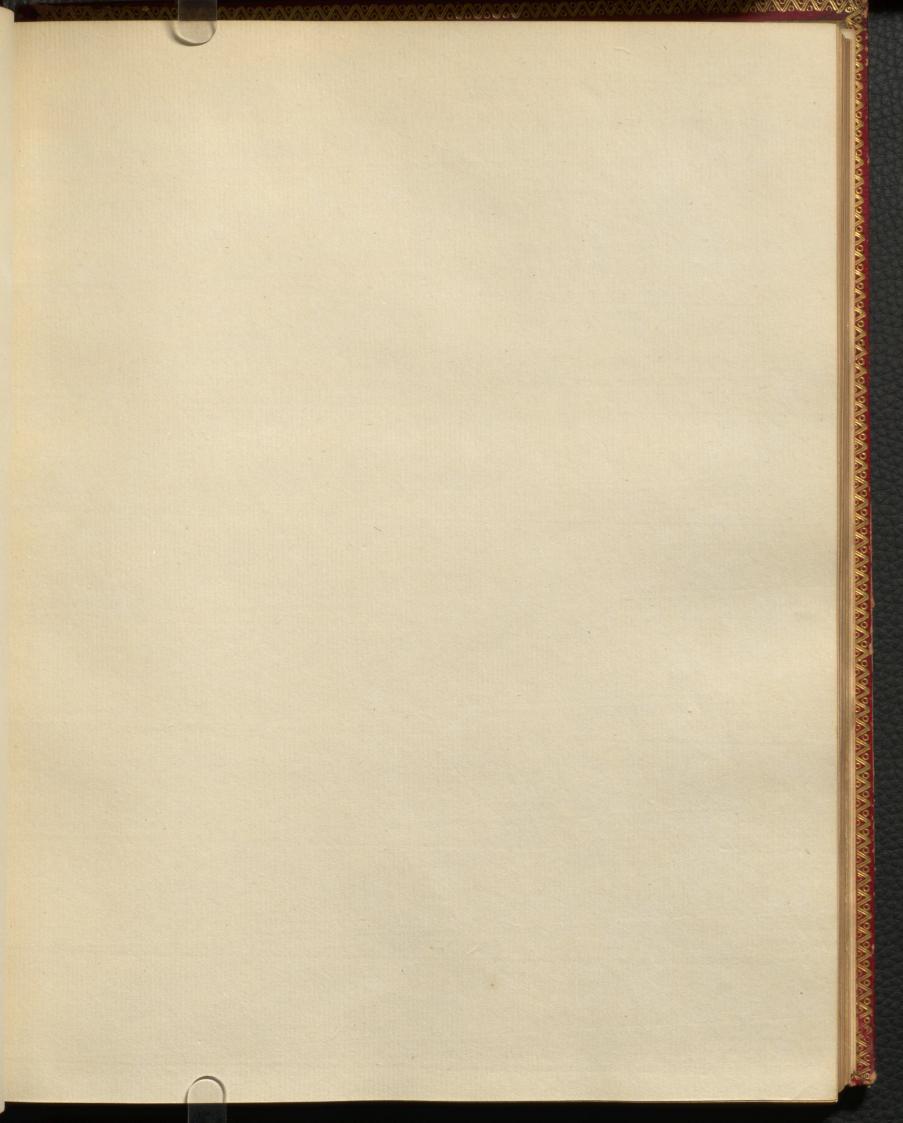
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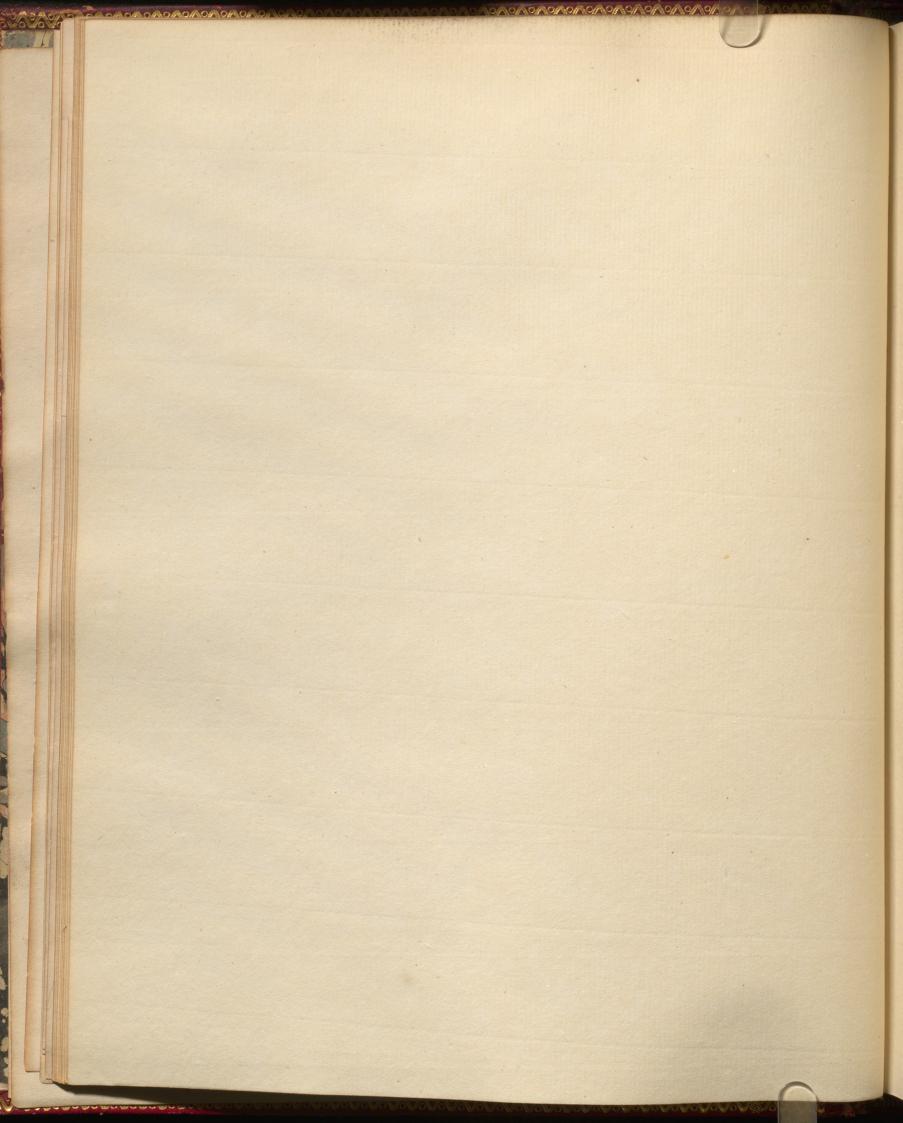
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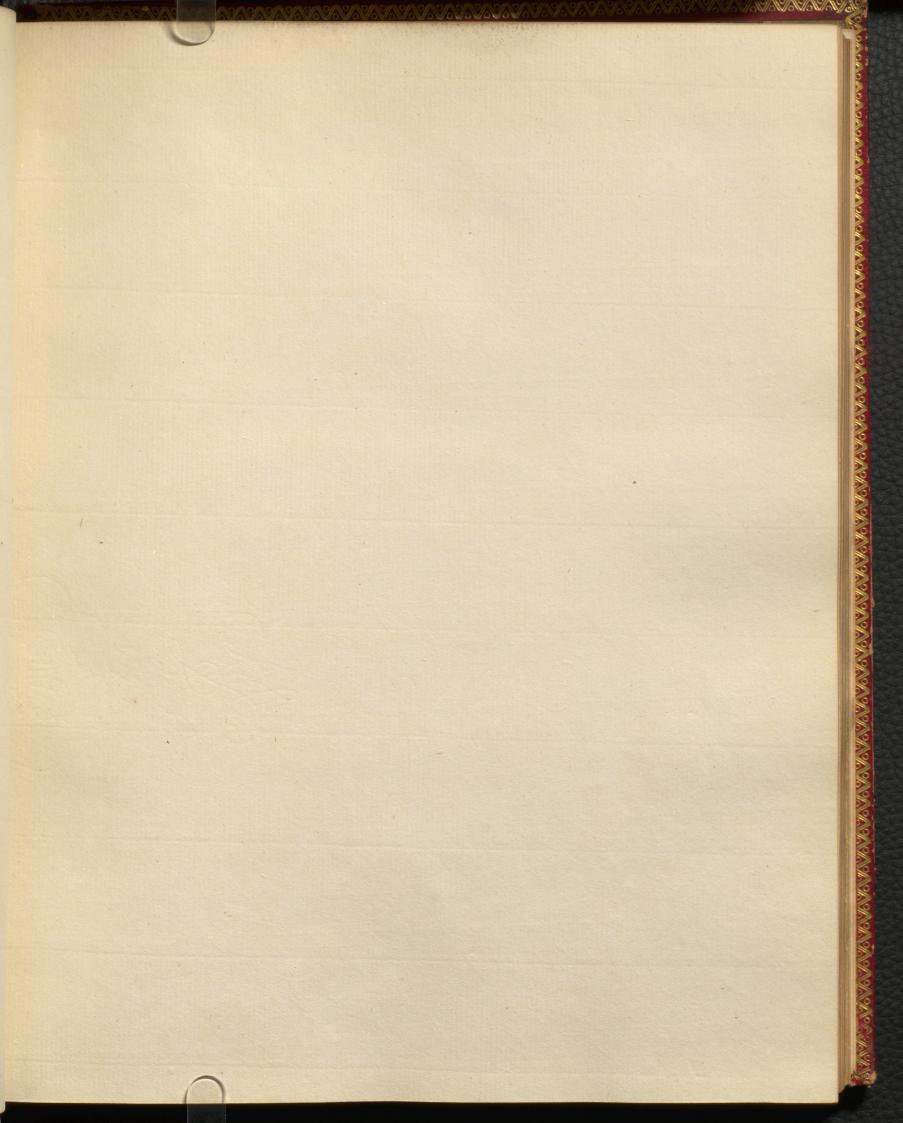


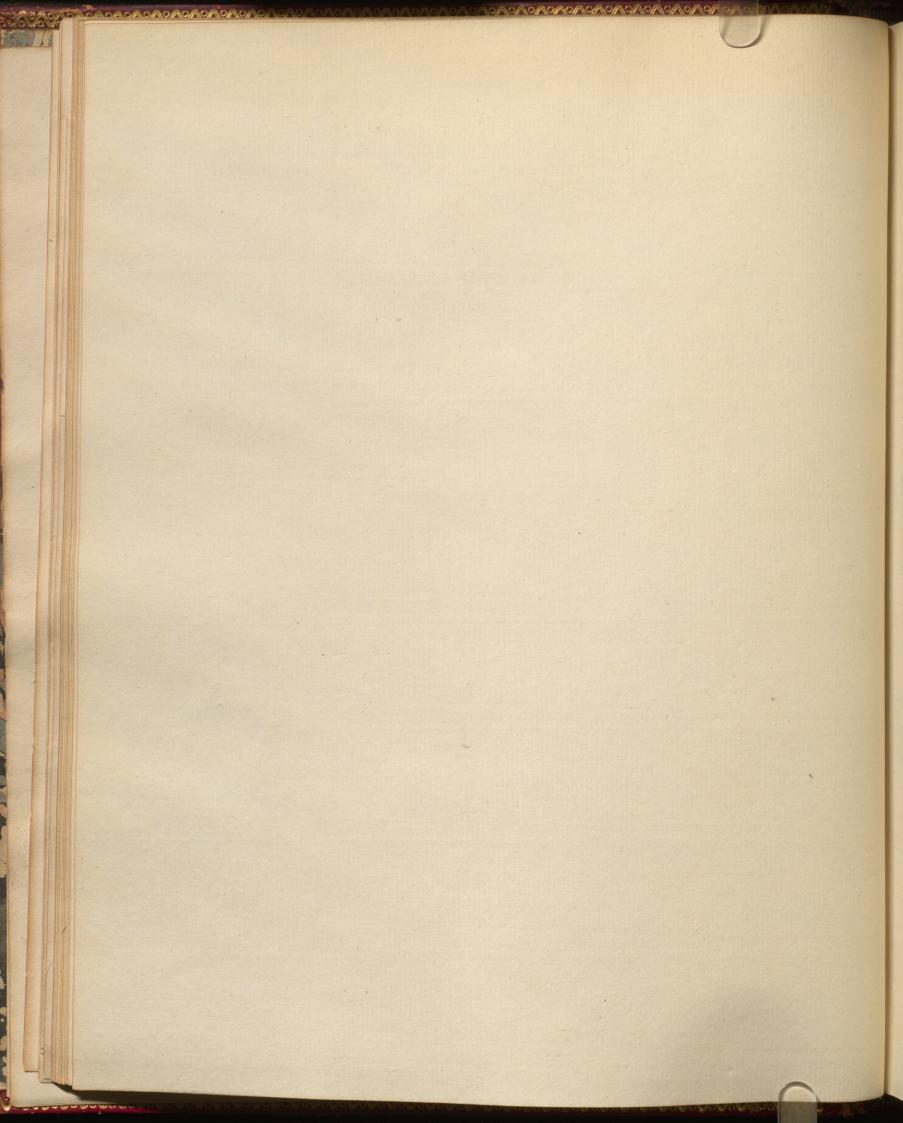


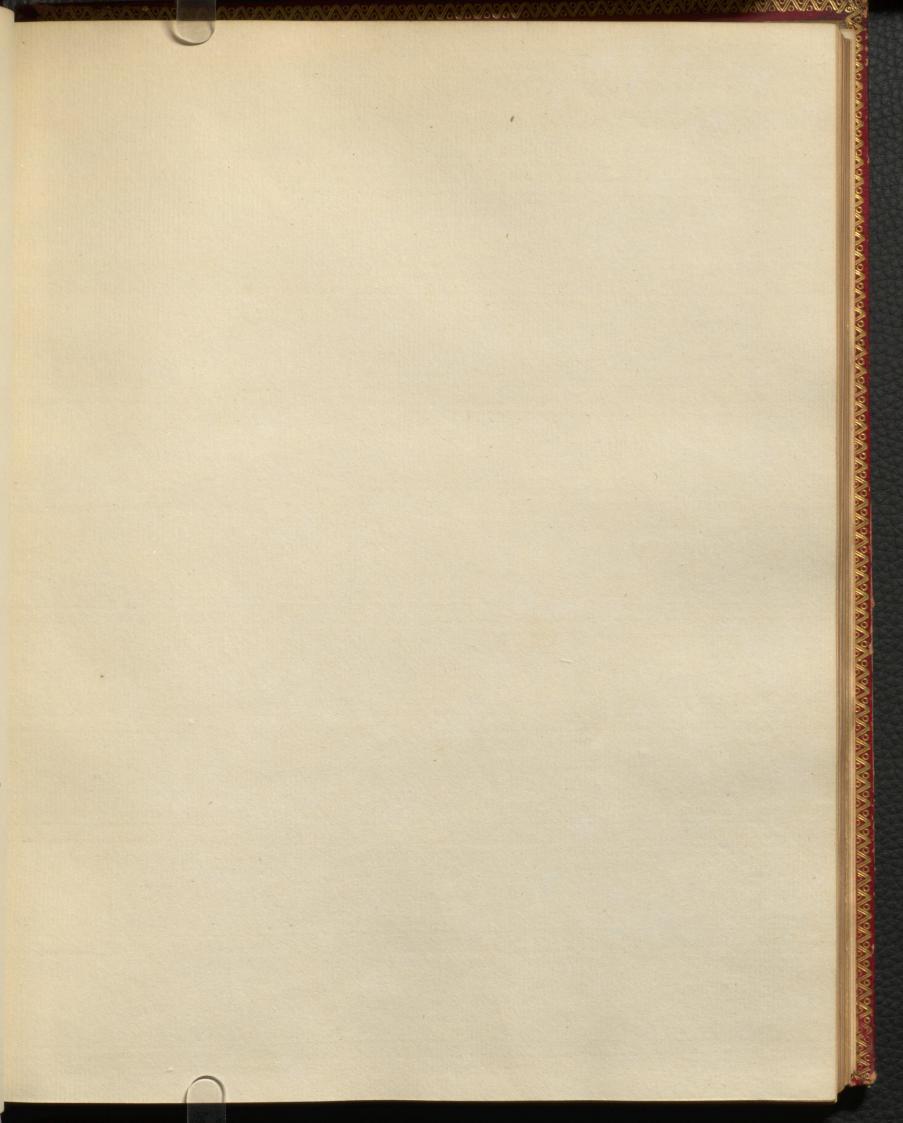


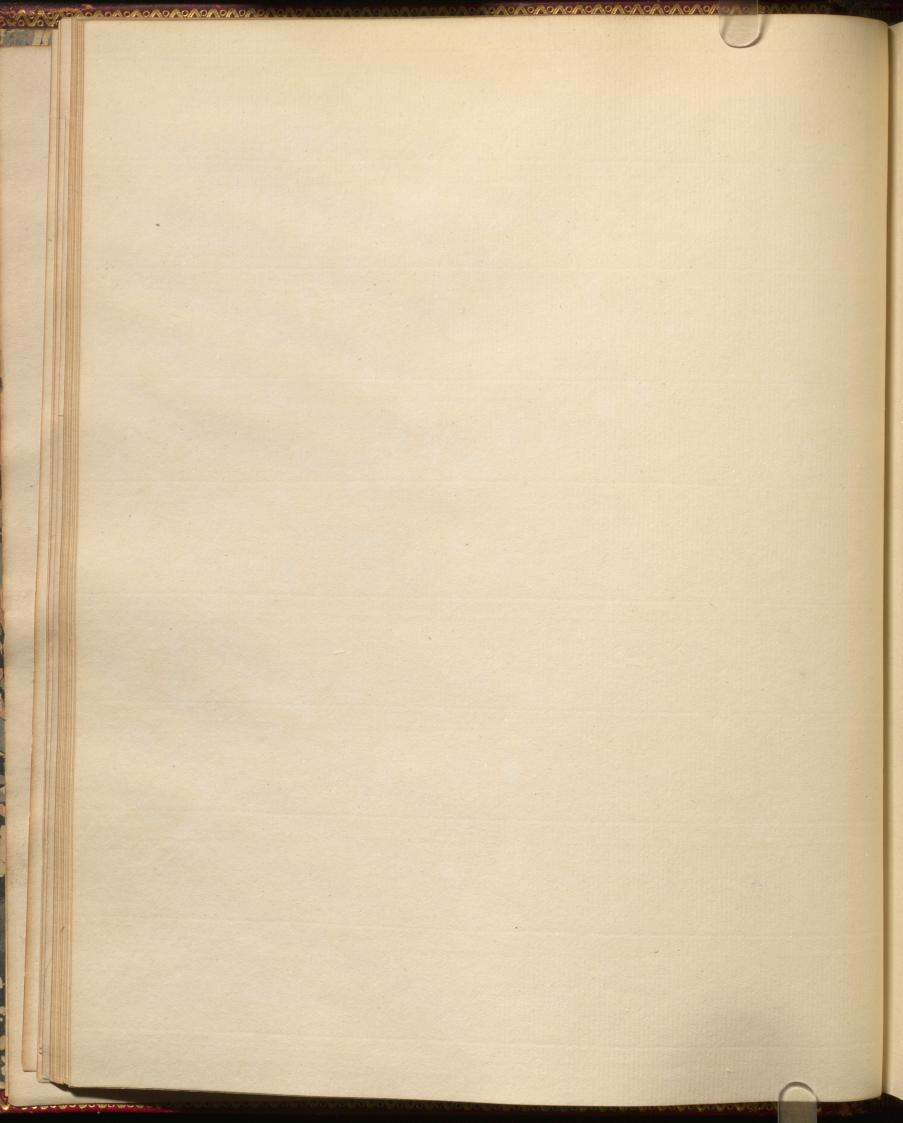


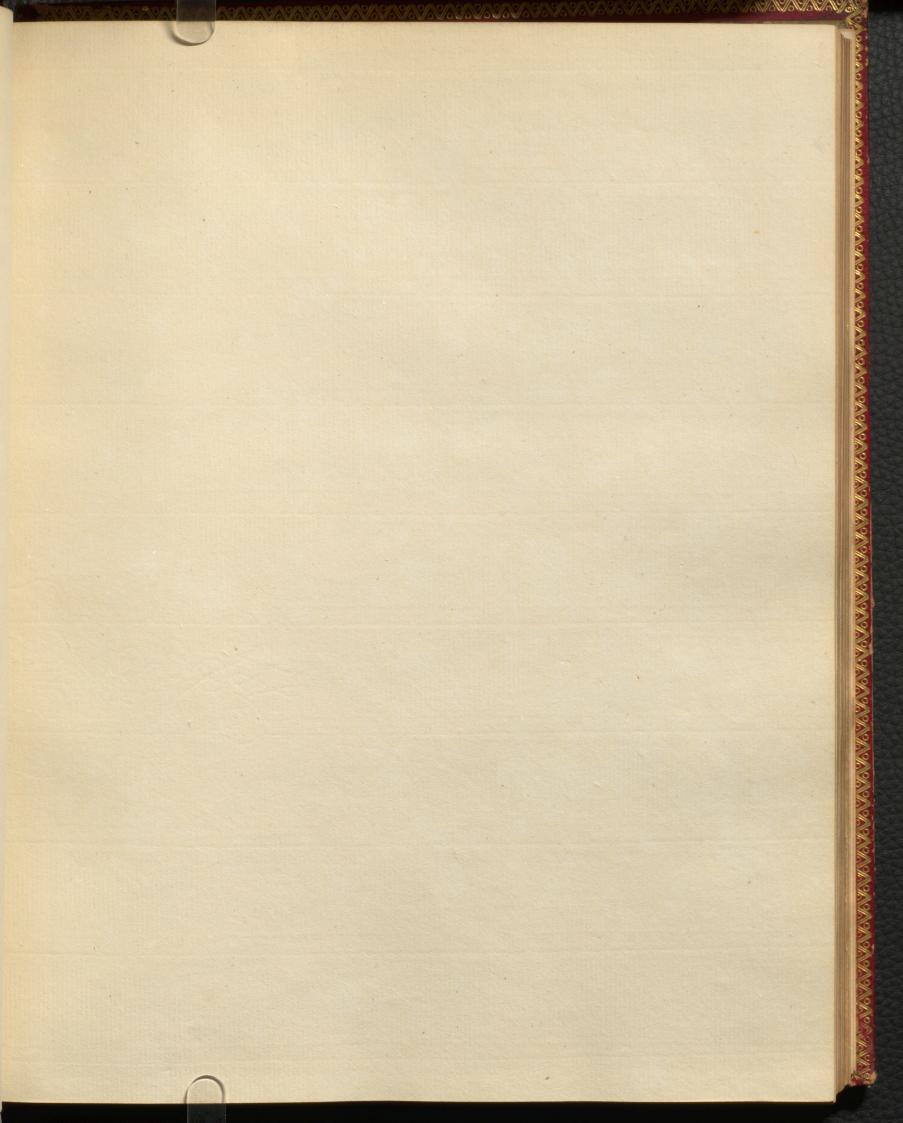


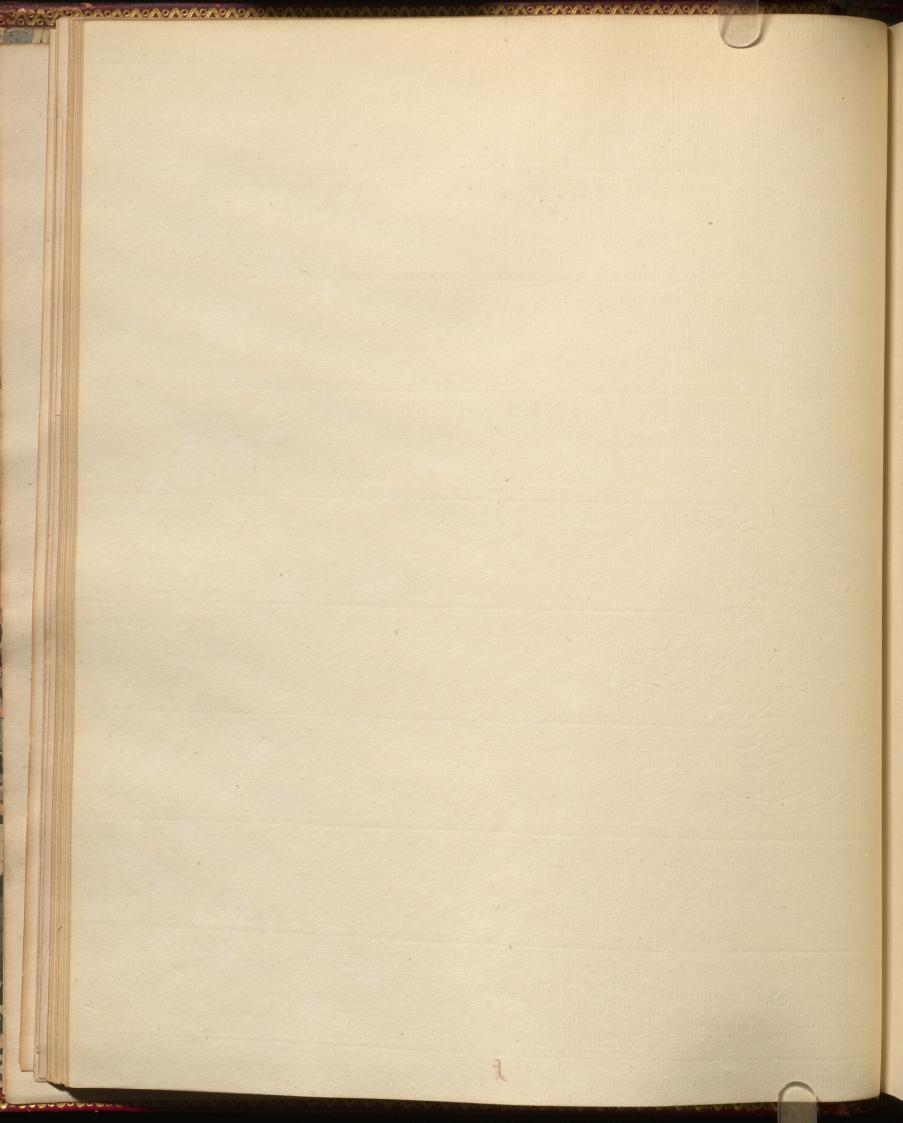


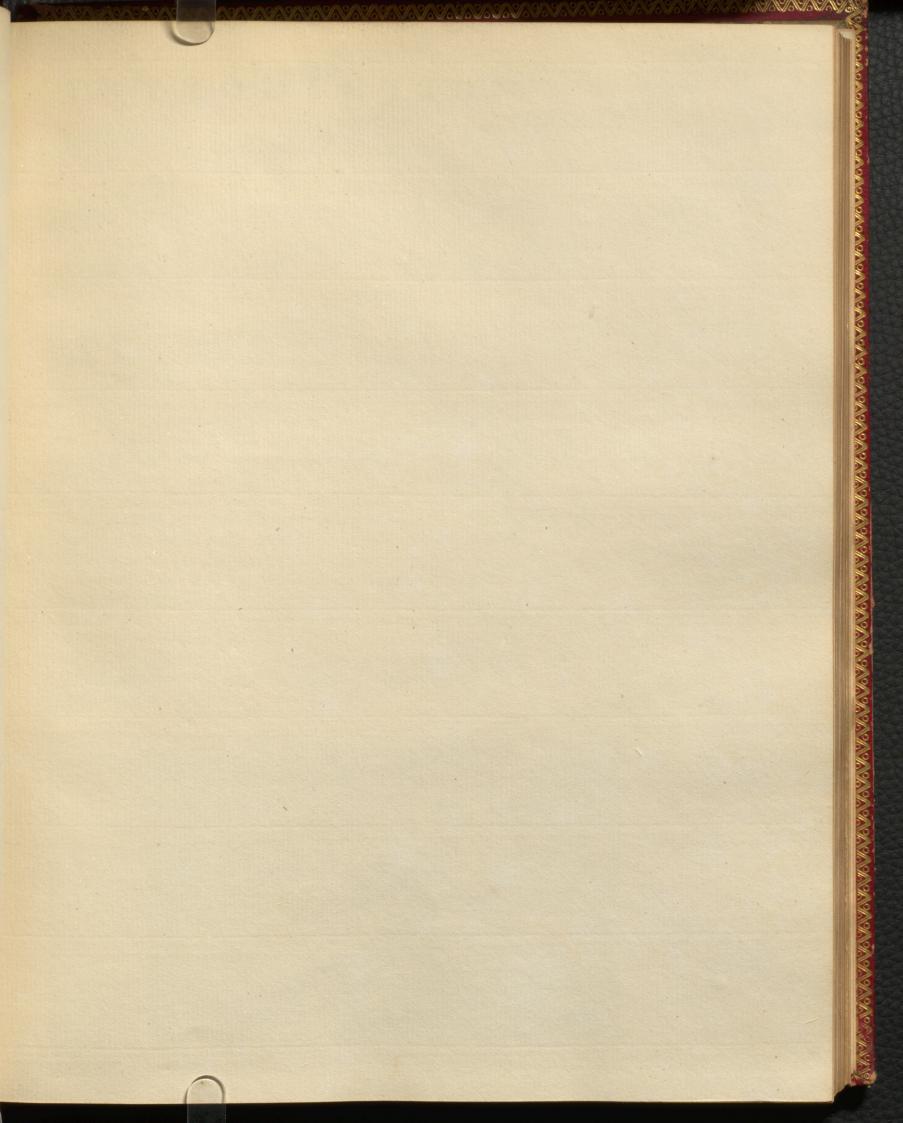


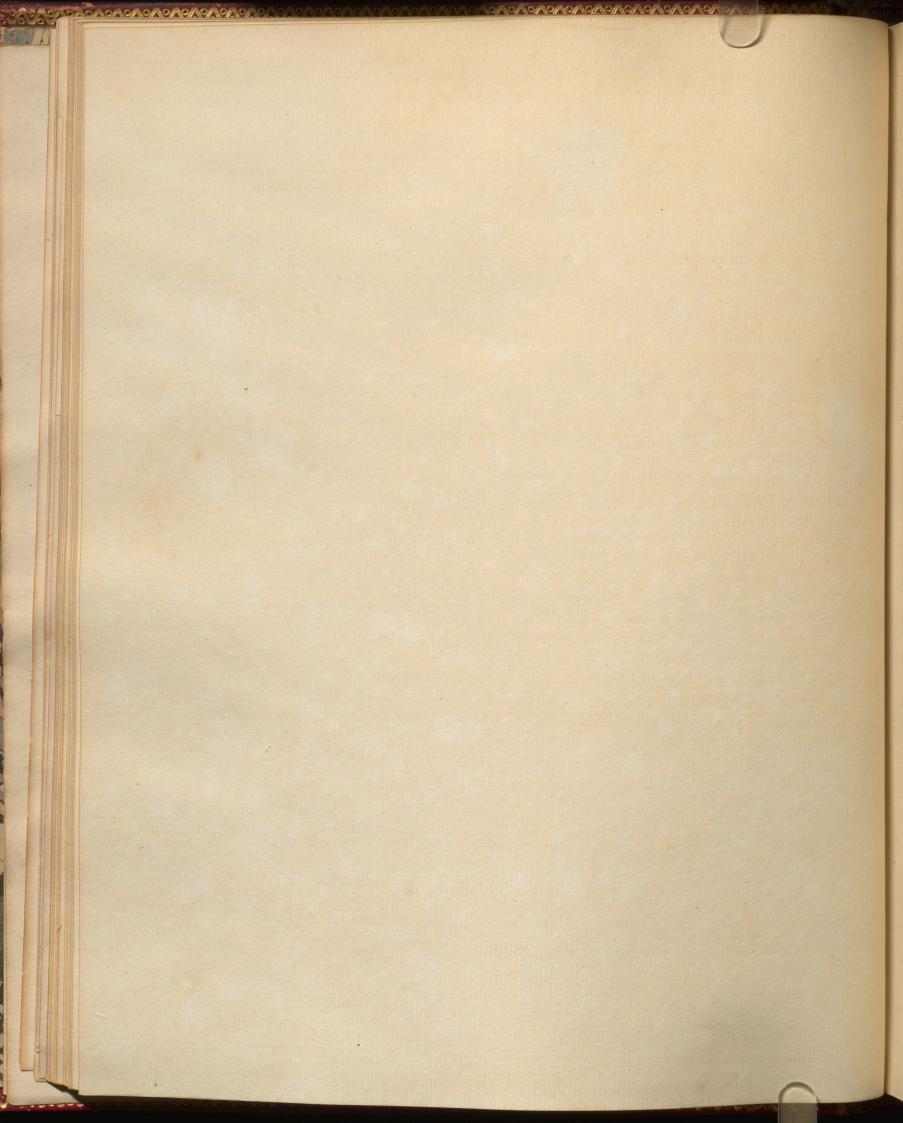












# INTRODUCTION.

OF THE

### ARCTIC WORLD.

A KNOWLEGE of the geography, climate, and foil, and a general view of the productions of the countries, whose Zoological History is to be treated of, are points so necessary, that no apology need be made for introducing them into a prefatory discourse.

It is worthy human curiofity to trace the gradual increase of the animal world, from the scanty pittance given to the rocks of Spitzbergen, to the swarms of beings which enliven the vegetating plains of Senegal: to point out the causes of the local niggardness of certain places, and the prodigious plenty in others. The Botanist should attend the fancied voyage I am about to take, to explain the scanty herbage of the Artic regions; or, should I at any time hereafter descend into the lower latitudes, to investigate the luxuriancy of plants in the warmer climates.

The Fossilist should join company, and point the variations of primæval creation, from the solid rock of *Spitzbergen* through all the degrees of terrestrial matter: the steps it makes to perfection, from the vilest earth to the precious diamond of *Golconda*. The changes in the face of the globe should be attended to; the destructions by vulcanoes; the ravages of the sea on some coasts, and the recompence it may have made to others, by the retreat of its waters.

B The



The pursuit of these enquiries will also have a farther and more important object. History should be called in, and a brief account given of the population of the more remote countries—the motives which induced mankind to seek retreats in climates seemingly destitute of incitements to migration. Particular attention should be paid to the means of peopling the new world, and of stocking it with animals, to contribute to the support of mankind, after the first colonization—the increase of those animals, and their cessation, and giving place in a certain latitude to genera entirely different.

Here the fine study of Geography should step in to our assistance. The outline of the terrestrial globe should be traced; the several approximations between part and part should be attended to; the nature of the oceans observed; the various islands pointed out, as the steps, the baiting-places where mankind might have rested in its passage from an overcharged continent.

The manners of the people ought not less to be attended to; and their changes, both mental and corporeal, by comparison of the present state of remote people with nations with whom they had common ancestors, and who may have been discovered still to retain their primæval seats. Some leading customs may still have been preserved in both; or some monuments of antiquity, proofs of congenial habitudes, possibly no longer extant in the savage than in the cultivated branches of the common stock.

STREIGHTS OF DOVER.

Let me take my departure northward, from the narrow streights of Dover, the site of the isthmus of the once peninsulated Britain. No certain cause can be given for the mighty convulsion which tore us from the continent: whether it was rent by an earthquake, or whether it was worn through by the continual dashing of the waters, no Pythagoras is left to solve the Fortuna locorum:

Vidi ego, quod fuerat quondam folidissima tellus Esse fretum.

But it is most probable, that the great philosopher alluded to the partial destruction of the Atlantica infula, mentioned by Plato as a distant tradi-



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tion in his days \*. It was effected by an earthquake and a deluge, which might have rent afunder the narrow isthmus in question, and left Britain, large as it feems at prefent, the mere wreck of its original fize +. The Scilly isles, the Hebrides, Orknies, Schetlands, and perhaps the Feroe islands, may possibly be no more than fragments of the once far-extended region. I have no quarrel about the word island. The little isthmus, compared to the whole, might have been a junction never attended to in the limited navigations of very early times. The peninfula had never been wholly explored, and it passed with the antients for a genuine island. The correspondency of strata on part of the opposite shores of Britain and France, leaves no room to doubt but that they were once united. The chalky CHALKYSTRATA. cliffs of Blanc-nez, between Calais and Bologne, and those to the westward of Dover, exactly tally: the last are vast and continued; the former short, and the termination of the immense bed. Between Bologne and Folkstone (about fix miles from the latter) is another memorial of the junction of the two countries; a narrow fubmarine hill, called the Rip-raps, about a quarter of a mile broad, and ten miles long, extending eastwards towards the Goodwin Sands. Its materials are boulder-stones, adventitious to many strata. The depth of water on it, in very low spring-tides, is only fourteen feet. The fishermen from Folkstone have often touched it with a fifteen feet oar; so that it is justly the dread of navigators. Many a tall ship has perished on it, and sunk instantly into twenty-one fathoms water. In July 1782, the Belleisle of fixty-four guns struck, and lay on it during three hours; but, by starting her beer and water, got clear off.

These celebrated streights are only twenty-one miles wide in the nar- WIDTH OF THE rowest part. From the pier at Dover to that at Calais is twenty-four. It is conjectured, that their breadth lessens, and that they are two miles nartower than they were in antient times. An accurate observer of fifty years, remarks to me, that the encreased height of water, from a decrease of breadth, has been apparent even in that space. The depth of the

RIP-RAPS.

STREIGHTS.

\* Plato died about the year 347 before CHRIST, aged 81. Pythagoras, about 497,

+ See this opinion farther discussed by Mr. Somner, Ph. Trans. Abridg. iv. 230.

B 2

channel,



DEPTH.

channel, at a medium, in highest spring-tides, is about twenty-five fathoms. The bottom, either coarse fand or rugged scars, which have for ages unknown refisted the attrition of the currents. From the streights, both eastward and westward, is a gradual increase of depth thorough the channel to a hundred fathoms, till foundings are totally lost or unattended to.

The spring-tides in the streights rise, on an average, twenty-four feet; the neap-tides fifteen. The tide flows from the German sea, passes the streights, and meets, with a great rippling, the western tide from the ocean, between Fairleigh, near Hastings, and Bologne \*; a proof, that if the separation of the land was effected by the feas, it must have been by the overpowering weight of those of the north.

BRITAIN, WHENCE PEOPLED.

It is most certain, that Britain was peopled from Gaul. Similar customs, as far as can be collected, evince this fact. The period is beyond the reach of history.

> Beyond the measure vast of thought, The works, the wizard TIME hath wrought! The Gaul, it's held of antique story, Saw Britain link'd to his now adverse strand; No fea between, nor cliff fublime and hoary, He pass'd with unwet feet through all our land. To the blown Baltic then, they fay, The wild waves found another way, &c.

> > COLLINS's Ode to Liberty.

If, after the event by which our island was torn from the continent, the migration over fo narrow a streight might, in the earlier ages, have been very readily effected in the vitilia navigia or coracles, or the monoxyla or canoes in use in the remote periods; yet the numerous species of Quadrupeds never could have fwam into our island, even over fuch a contracted water, which at all times must have been possessed by tides so rapid, as to baffle their utmost efforts: their passage, therefore, must have been

\* All the intelligence respecting the tides, &c. in these parts, I received from Mr. James Hammond of the custom-house, Dover, and Mr. William Cowly, a veteran pilot of the fame place. over

#### ENGLAND.

over the antient isthmus; for it is contrary to common sense to suppose, that our ancestors would have been at the trouble of transporting such guests as wolves and bears, and the numerous train of lesser rapacious animals, even had it been practicable for them to have introduced the domestic and useful species.

Would they on board or Bears or Lynxes take, Feed the She-adder, and the brooding Snake?

PRIOR.

Men and beasts found their way into Great Britain from the same quarter. We have no Quadrupeds but what are also found in France; and among our lost animals may be reckoned the URUS\*, WOLF, BEAR, WILD BOAR, and Beaver, all which were once common to both countries. The Urus continued among us in a flate of nature as late at left as the year 1466 †: and I have seen some of their descendants, scarcely to be called tame, in confinement in the parks of Drumlanrig and Chillingham I. The Caledonian Bears were exported to Rome, and esteemed for their sierceness &, They continued in Scotland till the year 1057. They existed in Wales, perhaps, till the fame period; for our antient laws ranked them among the beafts of chace ||. Wolves infested even the middle counties of England as late as the year 1281, and continued their ravages in North Britain in the reign of Queen Elizabeth; nor were they wholly extirpated till the year 1680. The Wild Boars were common in the neighborhood of London in the reign of Henry II. and continued in our kingdom, in a wild state, till 1577: they were then only to be found in the woods of Lord Latimer, who, we are informed by Doctor Moufet, toke great delight in their chace ¶. Let me add, from the fame authority, that Roebucks

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<sup>\*</sup> The Quadrupeds, Birds, &c. printed in small capitals, are described in the Zoology of this Work. The Quadrupeds in the common type are referred to my History of Quadrupeds, 2 vol. 4to.

<sup>+</sup> Six Wild Bulls were used at the installation feast of George Nevil, archbishop of York. Leland's Collett. vi. 2.

I Tours in Scotland.

<sup>§</sup> Martial. Plutarch.

<sup>||</sup> Raii Syn. Quad. 214.

Mealth's Emprovement.

were found at the fame period in Wales, and among the Cheviot bills; they are now confined to the Highlands of Scotland. Finally, Beavers inhabited Wales in 1188, when our historian, Giraldus, made his progress through the principality. Every one of these animals are at this time to be found in France, the Urus excepted. Theodebert, king of France, perished in the chace of one about the year 548 \*; but it is probable that the species must have existed in that vast kingdom long after that event.

The ELK, N° 3; Genet, Hift. Quad. N° 224; LYNX, N° 150; Fat Dormouse, N° 287; Garden Dormouse, N° 288; and the Bats Serotine, Pipistrelle, and Barbastelle, N° 408, 409, 410, either never reached our island, or if they did, perished so early, that even their very names in the British tongue, have perished with them. The Ibex, N° 13, and the Chamois, N° 17, inhabitants only of the remote Gaulish Alps and Pyreneans, probably never reached us. France, therefore, possesses forty-nine species of Quadrupeds; we only thirty-nine. I exclude two species of Seals to both reckonings, being animals which had at all times powers of making themselves inhabitants of the coasts of each kingdom.

BIRDS.

Birds, which have the ready means of wafting themselves from place to place, have notwithstanding, in numbers of instances, their limits. Climate confines some within certain bounds, and particular forts of food induce others to remain within countries not very remote from us; yet, by wonderful instinct, birds will follow cultivation, and make themselves denizens of new regions. The Cross-bill has followed the apple into England. Glenco, in the Highlands of Scotland, never knew the Partridge, till its farmers of late years introduced corn into their lands: nor did Sparrows ever appear in Sibiria, till after the Russians had made arable the vast wastes of those parts of their dominions. Finally, the Rice Buntings, natives of Cuba, after the planting of rice in the Carolinas, annually

<sup>\*</sup> Ecole de la Chase, clxi.

<sup>+</sup> The Common Seal, is common to the ocean and Mediterranean sea. Possibly the Mediterranean Seal, Hist. Quad. No 376, may be so likewise.

quit the island in myriads, and sly over sea and land, to partake of a harvest introduced there from the distant India.

FRANCE, as it exceeds in variation of climate, fo it exceeds us in the number of species of birds. We can boast of only one hundred and thirtyone kinds of land-birds, and one hundred and twenty-one of water-fowl. France, on the contrary, has one hundred and fifty-fix of the first, and one hundred and thirteen of the last. This computation may not be quite accurate; for no one has as yet attempted its Fauna, which must be very numerous, in a kingdom which extends from Calais, in about lat. 51, to Collioure in the fouth of Roussillon, on the Mediterranean fea, in about lat. 42. The northern parts possess the birds in common with England: and in all probability the provinces in the Mediterranean annually are visited by various species from northern Africa.

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Stupendous and precipitous ranges of chalky cliffs attend the coast, Coasts of Brifrom Dover eastward, and, from their color, gave the name of Albion to our island. Beneath one of them anchored Cefar, fifty-five years before CHRIST, and fo near as to be capable of being annoyed by the darts of the Britons. After weighing anchor, he failed up a bay, now occupied by meadows, and landed at Rutupium, Richborough, opposite to the prefent Sandwich. The walls of the former still evince its antient strength; and the veftiges of a quay, now bounded by a ditch, point out the anchorage of the Roman commerce. The adjacent Thanet, the Thanatos of the antients, at present indistinguishable from the main land, was in old times an island, separated by a deep channel, from a mile and a half to four miles in width, the fite of Roman fettlements; and, in 449, celebrated for having been the first landing-place of the invading Saxons; to whom it was affigned as a place of fecurity by the imprudent Vortigern. But fuch a change has time effected, that Thanet no more exists as an island; and the Britanniarum Portus, in which rode the Roman navies, is now filled with marshy meads.

After passing the lofty chalky promontory, the North Foreland, opens the estuary of the Thames, bounded on each side by low shores, and its channels divided by numerous fand-banks; fecurely passed, by reason of

ENGLAND

VIII

the perfection of navigation, by thousands of ships frequenting annually London, our emporium, envied nearly to impending decline.

Suffolk and Norfolk.



On the projecting coasts of Suffolk and Norfolk, arise, in certain intervals, eminences of different matter. Loamy cliffs appear about Leoftoffe, Dunwich, &c. The Crag-pits about Woodbridge, are prodigious pits of fea-shells, many of them perfect and quite solid; an inexhaustible fund of manure for arable lands. About Yarmouth, and from thence beyond Wintertoness, the coast is low, flat, and composed of shingle, backed by fand. From Hapsburgh to Cromer are a range of lofty clayey precipices. rifing from the height of forty to a hundred feet perpendicular; a prey to the ocean, which has effected great changes in these parts. About Sherringham and Cley, it rifes into pretty and gentle hills, sloping down into a rough shore, of little rocks and stones. At Holkham, Wells, and Wareham, the fandy shores terminate in little hillocks of fand, kept together by the Arundo Arenaria, or Bent, the great preservative against the inundations of fand, which would otherwife destroy whole tracts of country, and in particular foon render useless the range of salt-marshes which these are backed with. Hunstanton cliff rises a distinguished feature in this flat tract. The furface is the usual vegetable mould, about a foot deep; beneath that are two feet of small broken pieces of chalk: the folid stratum of the fame, after having been loft for numbers of miles, here again makes its appearance, and forms a folid bed thirty feet in thickness, resting on a hard red ftone four feet deep, which is often ground and made into a red paint. Seven feet of loofe friable dirty yellow stone succeeds, placed on a base of iron-colored plumb-pudding-stone, projecting into the sea, with vast fragments scattered over the beach. This cliff is about eighty feet high, lies on the entrance of the washes, the Metaris Estuarium of Ptolemy. From hence all the coast by Snettisham to Lynn is low, flat, and shingly.

From Holm, the northern promontory of Norfolk, the sea advances deeply westward, and forms the great bay called the Washes, filled with vast sand-banks, the summits of which are dry at low water; but the intervening channels are the means of prodigious commerce to Lynn in Norfolk, seated on the Ouze, which is circulated into the very inland



parts of our island, through the various rivers which fall into its long course. Lynn is mentioned in the Doomsday Book; but became considerable for its commerce with Norway as early as the year 1284.

The opposite shore is that of Lincolnshire. Its great commercial town, Lincolnshire. Boston, stands on the Witham, a few miles from the head of the bay. Spring-tides rife at the quay fourteen feet, and convey there veffels of above a hundred tons; but greater ships lie at the Scap, the opening of the estuary. Such is the case at Lynn; for the sluggish rivers of these

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Lincolnsbire, and part of fix other counties, are the Pais-bas, the Low Countries of Britain; the former bounded on the western part by a range of elevated land, which, in this humble county, overlooks, as the Alps would the ocean, the remaining part. This very extensive tract, from the Scap to the northern headland opposite to Hull, presents to the sea a bowlike and almost unindented front; and so low as to be visible from sea only at a fmall distance; and churches, instead of hills, are the only landmarks to feamen, among which the beautiful steeple of Boston is particularly diftinguished. The whole coast is fronted with falt-marshes or fand-hills, and secured by artificial banks against the fury of the sea. Old Holinsbed gives a long lift of ports on this now inhospitable coast. Waynfleet, once a noted haven, is at present a mere creek. Skegness, once a large walled town, with a good harbour, is now an inconfiderable place a mile from the sea: and the port of Grimesby, which in the time of Edward III. furnished him with eleven ships, is now totally choaked with fand.

The Great Level, which comprehends Holland in this county, with part of Northamptonshire, Norfolk, Suffolk, Cambridge, and Huntingdon, a tract of fixty computed miles in length, and forty in breadth, had been originally a wooded country. Whole forests of firs and oaks have been found in digging, far beneath the moor, on the folid ground; oaks fifteen feet in girth, and fixteen yards long, mostly burnt at the bottoms, the antient method of falling them: multitudes of others entirely rooted up, as appears, by the force of the sea bursting in and overwhelming this whole tract, and covering it with filt, or the mud which it carried with it from

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time to time. Ovid's beautiful account of the deluge was here verified; for under Conington Down, in Huntingdonshire, was found the skeleton of a whale near twenty feet long, which had once swam secure to this distance from its native residence.

In process of time this tract underwent another revolution. The filt or mud gained fo confiderably as to leave vast spaces dry, and other parts so shallow as to encourage the Romans to regain these fertilized countries from the sea. Those sensible and indefatigable people first taught us the art of embanking, and recovered the valuable lands we now poffefs. It was the complaint of Galgacus, that they exhausted the strength of the Britons, in sylvis et paludibus emuniendis \*, ' in clearing woods and draining marshes.' After the Romans deserted our island, another change took place. Neglect of their labors succeeded: the drains were no longer kept open, and the whole became fen and shallow lake, resembling the present east fen; the haunt of myriads of water-fowl, or the retreat of banditti. Ely and many little tracts which had the advantage of elevation, were at that period literally islands. Several of these in early times became the retreat of religious. Ely, Thorney, Ramsey, Spiney, and others, rose into celebrated abbies, and by the industry of their inhabitants first began to restore the works of the Romans. The country above Thorney is reprefented by an old historian + as a paradife. Constant visitations, founded on wholesome laws, preserved this vast recovered country: but on the rapid and rapacious dissolution, the removal of numbers of the inhabitants, and the neglect of the laws of the Sewers, the drains were filled, the cultivated land overflowed, and the country again reduced to a useless morals.

<sup>\*</sup> Vita Agricolæ. † Malmsbury, lib. iv. 294. † Compare Sir W. Dugdale's maps of this tract, in its morassy and drained state. Hist. Embank. p. 375.416.

In the twentieth of Elizabeth the state of the country was taken into confideration \*; no great matters were done till the time of Francis, and William his son, earls of Bedford, who attempted this Herculean work, and reclamed this vast tract of more than three hundred thousand acres; and the last received, under sanction of parlement, the just reward of ninety thousand acres. I speak not of the reliques of the antient banks which I have seen in Holland in Lincolnshire, now remote from the sea, nor yet of the Roman tumuli, the coins, and other evidences of the residence of that nation in these parts; they would swell a mere presace to too great a length: and, it is to be hoped, will be undertaken by the pen of some native, who will perform it from his actual survey.

The vast fenny tracts of these counties were in old times the haunts of multitudes of water-fowl; but the happy change, by attention to draining, has fubflituted in their place thousands of sheep; or, instead of reeds, made those tracts laugh with corn. The CRANE, which once abounded in these parts, has even deserted our island. The Common WILD DUCK still breeds in multitudes in the unreclamed parts; and thousands are sent annually to the London markets, from the numerous decoys. The GREY LAG GOOSE, the origin of the Tame, breeds here, and is refident the whole year: a few others of the Duck kind breed here. Ruffs, RED-SHANKS, LAPWINGS, RED-BREASTED GODWITS, and WHIMBRELS, are found here during fummer; but, with their young, in autumn, disperse about the island. The Short-EARED Owl migrates here with the Woodcock, and is a welcome guest to the farmer, by clearing the fields of mice. Knors swarm on the coasts in winter: are taken in numbers in nets: yet none are seen during summer +. The most distant north is probably the retreat of the multitude of water-fowl of each order which stock our shores, driven southward by the extreme cold: most of them regularly, others, whose nature enables them to brave the usual winters of the

\* Hift. Embank. p. 375.

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+ See Tour in Scotland, 1769; Lincolnsbire, where the fen birds are enumerated.

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RUFES.

frigid zone, are with us only accidental guests, and in seasons when the frost rages in their native land with unusual severity.

On Christmas day of the severe winter of 1785, Doctor Aikin observed numbers of flocks of a certain species of Duck slying southward off the coast near Yarmouth. Each slock consisted of a party from ten to sixty. No sooner did one disappear but another succeeded, and so they continued as long as he looked on, which was above two hours: probably, they continued the whole day. They kept at about the distance of sive hundred yards from the shore, so that the species was not to be ascertained. About the same day in 1786, Doctor Aikin observed only one slock, keeping the same course and the same distance. The mildness of the season (for on that difference depends the migration of the seathered tribe) made it unnecessary for them to seek more genial climates.

In the latitude of Boston, or about lat. 53, the following remark may be made on the vegetable creation:—A line may be drawn to the opposite part of the kingdom, which will comprehend a small portion of the north of Norfolk, the greatest part of Lincolnshire, Nottinghamshire, Derbyshire, the moorlands of Staffordshire, all Cheshire, Flintshire, Denbighshire, Caernarvonshire, and Anglesey. Beyond this line, nature hath allotted to the northern part of these kingdoms certain plants, of which an enumeration will be given in the Appendix, and which are rarely or never found to transgress that line to the south.

From Clea Nefs, the land retires westward, and, with the opposite shore of Yorkshire, bounds the great estuary of the Humber, which, winding deep into the country, is the receptacle of the Trent, and all the considerable rivers of that vast province; some of which arise in its most remote parts. All these coasts of Lincolnshire are slat, and have been gained from the sea. Barton and Barrow have not at present the lest appearance of ports; yet by Holinshed were styled good ones \*. Similar accidents have befallen the upper part of the low tract of Holderness, which saces the congruent shores. Hedon, a few miles below Hull, several hundred years ago a port

<sup>\*</sup> Deser. Britain, 108.

of great commerce, is now a mile and a half from the water, and has long given way to the rifing fortune of the latter (a creation of Edward I. in 1296) on account of the excellency of its port. But in return, the feathas made most ample reprisals on the lands of this hundred: the site, and even the very names of several places, once towns of note upon the Humber, are now only recorded in history: and Ravensper was at one time a rival to Hull\*; and a port so very considerable in 1332, that Edward Baliol and the consederated English barons sailed from hence with a great sleet to invade Scotland; and Henry IV. in 1399, made choice of this port to land at, to effect the deposal of Richard II. yet the whole of it has long since been devoured by the merciless ocean: extensive sands, dry at low water, are to be seen in their stead; except Sunk Island, which, till about the year 1666, appeared among them like an elevated shoal, at which period it was regained, by embankments, from the sea; and now forms a considerable estate, probably restored to its pristine condition.

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Spurn Head, the Ocelum Promontorium of Ptolemy, terminates this fide of the Humber, at prefent in form of a fickle, near which the wind-bound ships anchor securely. The place on which the lighthouses stand is a vast beach near two miles long, mixed with fand-hills slung up by the sea within the last seventy years.

The land from hence for some miles is composed of very lofty cliffs of brown clay, perpetually preyed on by the sury of the German sea, which devours whole acres at a time, and exposes on the shores considerable quantities of beautiful amber. Fine wheat grows on the clay, even to the edge of the cliffs. A country of the same fertility reaches from Kilnsey, near this place, as far as the village of Sprottly, extending, in a waved form, for numbers of miles; and, when I saw it, richly cloathed with wheat and beans.

From near Kilnsey the land bends very gently inward, as far as the great promontory of Flamborough; and is a continuance of high clayey cliff, till about the village of Hornsey. Near it is a mere, noted for its Eels and

SPURN HEAD

AMBER.

\* Madex. Ant. Exch. i. 422.

Pikes

## HERRING GULL. PUFFIN.



CORNIORANT & SHAG.





GUILLEMOT.

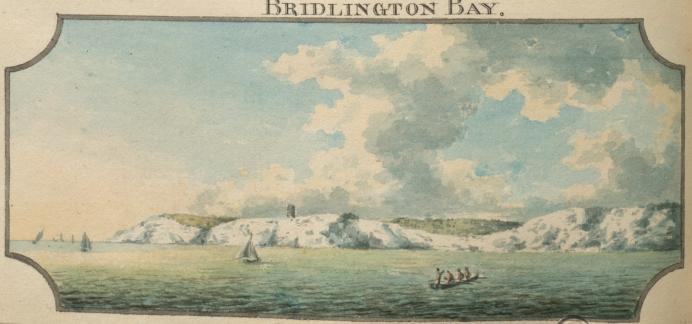
Pikes, at present separated from the sea by so small a space as to render its speedy destruction very probable. A street, called Hornsey Beck, has long fince been swallowed: and of Hide, a neighbouring town, only the tradition is left.

The country grows confiderably lower; and, near the base of the promontory, retires fo far in as to form Bridlington bay, antiently called Gabrantovicorum Sinus, to which the Geographer adds Eulimen G, on account of the excellency and fafety of its port, where veffels ride in full fecurity under the shelter of the lofty head-land. Smithie sand, the only one between Flamborough and Spurn Head, stretches across the entrance into Bridlington bay, and, in hard gales from the South and South-east, adds to the fecurity of that noble asylum for the coasting vessels. Sureby, an adjacent village, feems no more than a translation from the old appellation. The Romans, in all probability, had a naval station here; for here ends the road, visible in many places between this place and York, and named, from its founders, the Roman ridge.

The head is formed of lime-stone, of a snowy whiteness \*, of a stupendous height, and vast magnificence, visible far at sea. If we may depend on Richard of Cirencester, the Romans named it Brigantum Extrema, and the bay Portus Felix. The Saxons styled the cape Fleamburg, perhaps from the lights which directed the great Ida, founder of the Northumberland kingdom, to land here, in 547, with a great body of their countrymen.

\* Soft near the top, and of a crumbling quality when exposed long to the frost. At the foot of the cliff it is hard, folid, and fmooth. Boats are employed every fummer in carrying great quantities to Sunderland, where it is burnt into excellent lime. Most of the lime-stone used at Scarborough is made from stones slung up by the sea. It may be remarked, that whatfoever degree of hardness any lime-stone possesses in the quarry, the mortar made from it, by proper management, may be made as hard, but by no means harder. Most of the houses in and about London are built with lime made of chalk; hence the many miserable casualties there, by the fall of houses. The workmen, senfible of the weakness of that kind of mortar, endeavour to keep the walls together by lodging frames of timber in them; which being confumed in cases of fire, the whole building tumbles suddenly, and renders all attempts to extinguish the fire very dangerous. -Mr. Travis. The

BRIDLINGTON BAY.



#### ENGLAND.

The vast height of the precipices, and the amazing grandeur of the caverns which open on the north fide, giving wide and folemn admission, through most exalted arches, into the body of the mountain; together with the gradual decline of light, the deep filence of the place unless interrupted by the striking of the oar, the collision of a swelling wave against the fides, or the loud flutter of the pigeons affrighted from their nests in the diffant roof, afford pleafures of scenery which such formations as this alone can yield. These also are wonderfully diversified. In some parts the caverns penetrate far, and end in darkness; in others are pervious, and give a romantic passage by another opening equally superb. Many of the rocks are infulated, of a pyramidal form, and foar to a great height. The bases of most are solid; but in some pierced through and arched. All are covered with the dung of the innumerable flocks of migratory birds which refort here annually to breed, and fill every little projection, every hole, which will give them leave to rest. Multitudes were swimming about; others fwarmed in the air, and stunned us with the variety of their croaks and screams. KITTIWAKES and HERRING GULLS, GUILLEMOTS and Black Guillemots, Auks, Puffins, Shags, and Corvorants, are among the species which resort hither. The notes of all sea-fowl are most harsh and inharmonious. I have often rested under rocks like these, attentive to the various founds over my head; which, mixed with the deep roar of the waves flowly fwelling, and retiring from the vaft caverns beneath, have produced a fine effect. The sharp voice of the Gulls, the frequent chatter of the Guillemots, the loud notes of the Auks, the scream of the HERONS, together with the deep periodical croak of the CORVORANTS, which ferves as a bass to the rest, have often furnished me with a concert, which, joined to the wild scenery surrounding me, afforded in an high degree that species of pleasure which results from the novelty and the gloomy majesty of the entertainment.

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At Flamborough head commence the hard or rocky coasts of this side of ROCKY Coasts Britain, which continue, with the interruption of a few sandy bays and low land, to the extremity of the kingdom. It often happens, that the bottom of the sea partakes of the nature of the neighboring element:

COM: XVGUIL. KITTIWARE,





HERON.







SCARBOROUGH.

thus, about Flamborough head, and a few miles to the northward (in places) the shores are rocky, and the haunts of lobsters and other crustaceous animals. From these strate a tract of fine sand, from one to sive miles in breadth, extends sloping eastward, and from its edge to that of the Dogger-bank is a deep bottom, rugged, rocky, and cavernous, and in most parts overgrown with corallines and submarine plants.

This disposition of shore gives to the inhabitants of this coast the advantageous sishery which they posses; for the shore on one hand, and the edges of the Dogger-bank on the other, like the sides of a decoy, give a direction to the immense shoals of the Cod genus, which annually migrate from the northern ocean, to visit, reside, and spawn, in the parts adjacent to our coasts. They find plenty of food from the plants of the rocks, and the worms of the sand, and secure shelter for their spawn in the cavernous part of the scarry bottom. It is in the channel between the banks and the shores, in which the Cod are taken, or in the hollows between the Doggers and Well-bank; for they do not like the agitation of the water on the shallows. On the contrary, the Skates, the Holibuts, Flounders, and other stat sish, bury themselves in the sand, and secure themselves from the turbulence of the waves.

HADDOCKS.



An amazing shoal of Haddocks visit this coast periodically, generally about the tenth of December, and continue there all January. They extend from the shore near five miles in breadth, and packed as close as they can swim; and in length from Flamborough head to Tinmouth castle, perhaps to Berwick. Their inner edge is only a mile from the shore. They are entirely taken by the hook, the use of the net being prohibited, much to the injury of this species of commerce. An army of a small species of Shark, the Picked, Br. Zool. iii. N° 40, slanks the outside of this shoal to prey upon it; for when the sishermen cast their lines beyond, they never catch any but those voracious sish \*.

\* Confult vol. iii. of the Br. Zoology for an account of the fish on this coast: also the Tour in Scotland, 1769. To Mr. Travis, Surgeon in Scarborough, I am indebted for the most curious articles.

TINMOUTH CASTLE.

Between



Between Flamborough head and Scarborough projects Filey Brig, a ledge of rocks running far into the sea, the cause of frequent shipwrecks. Scarborough castle, seated on a vast rock projecting into the water, succeeds. The spring-tides, at the time of the equinoxes, rise here twenty-sour seet; but at other times only twenty: the neap-tides from twelve to sixteen. Then Whithy, noted for its neighboring allum-works, and more for its sine harbour, the only one on the whole coast: the admittance into which is a narrow channel between two high hills: it expands largely within, and is kept clean by the river Esk. From hence to the mouth of the Tees, the boundary between this county and that of Durham, is a high and rude coast, indented with many bays, and varied with little sishing villages, built strangely among the cliss, silling every projecting ledge, in the same manner with those of the peasants in the picturesque and rocky parts of China.

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The Tees, the northern limit of this great county, opens with a wide mouth and mudded bottom into the sea. This was the Dunum Estuarium of Ptolemy; and serves as a brief entrance for navigators into the country. Almost all the northern rivers descend with a rapid course, from their mountanous rise and supply; and afford but a short navigation. From hence the lead of the mineral parts of Durham, and the corn of its more level parts, are imported. In the mud of this estuary, more particularly, abounds the Myxine Glutinosa of Linnæus, the Hag of the neighboring sistermen; a worm, which enters the mouths of the fish taken on hooks, that remain a tide under water, and devours the whole, leaving only the skin and bones. This also is the worm which converts water into a sort of glue.

From Seaton Snook, in the bishoprick of Durham, to Hartlepool, is a feries of sand-banks, and the shore a long-continued sandy shallow. From the Ness Point of Hartlepool to Blackballs is a rocky lime-stone coast, with frequent intervals of sand-bank, and a stony beach; but Seham and Hartlepool is so very rugged, that no enemy could land, or even stand off the shore, without the most imminent danger: in particular, the coasts about Hawthorn Hive are bold, excavated, and formed into grotesque sigures,

FILEY BRIG.

TEES.

DURHAM.



FILEY BRIG.

for feveral miles, and the coasts rough with a broken and heavy sea, by reason of the hidden rocks and spits of sands which run out far from land. From Sebam to Sunderland are sand-hills and shallow sandy beaches. From Weremouth to near Cleadon, low rocks of lime-stone form the coast, here and there intersected with sand-hills and stony beaches. From thence to the mouth of the Tyne, and even to Dunstanbrough in Northumberland, the shore is sandy, and the land in a few places rocky; but from thence to Bamborough, the coasts are high and rocky, in many places run far into the sea, and at low tides shew their heads above water.

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Bamborough castle stands on the last of the range of rocky cliss. This fortress was sounded by the Saxon monarch Ida. After various fortunes, it has proved in its dismantled state of more use to mankind than when it boasted some potent lord and sierce warders. A charitable prelate of the see of Durham purchased the estate, and left it for the use of the distressed seamen who might suffer shipwreck on this dangerous coast, and to unconfined charitable purposes, at the discretion of certain trustees. The poor are, in the dearest seasons, supplied with corn at a cheap rate; the wrecked, sound senseless and benumbed with cold, are taken instantly into these hospitable walls, and restored to life by the affistance of food, medicine, and warm beds; and if the ship is capable of relief, that also is saved, by means of machines always ready for the purpose \*.

FARN ISLES.

The Farn islands, or rather rocks, form a group at no great distance from shore; the nearest a mile and sixty-eight chains; the farthest about seven. These probably, at some remote period, have been convulsed from the land, but now divided from it by a surious tide, rushing through a channel from sive to twelve sathoms in depth. The original sea, to the east of the Staples, the remotest rocks, suddenly deepens to forty or sifty. St. Cuthbert sirst made these rocks of note: he occasionally made the largest of them the seat of his devotion and seclusion from the world; expelling, says superstition, the malignant spirits, the pre-occupants.

\* Tour in Scotland, 1769; and fuller in Mr. Hutchinson's Northumberland, ii. 176. † Adair. Hammond. Thompson.

BAMBOROUGH CASTLE.

Some



Some remains of a chapel are still to be feen on it. For ages past, the fole tenants are a few cows, wafted over from the main land in the little cobles, or boats of the country; and the EIDER DUCKS, still distinguished here by the name of the Saint. Numberless sea-fowls, and of great variety of kinds, possess the remoter rocks, on which they find a more secure retreat than on the low-cliffed shores. To most of the marine feathered tribe the whole coast from Flamborough head to that of St. Ebb's is inhospitable. They feek the loftiest promontories. Where you hear of the haunts of the RAZOR-BILLS and GUILLEMOTS, CORVORANTS and SHAGS, you may be well affured, that the cliffs foar to a diftinguished height. Where those are wanting, they retire to sea-girt rocks, as spots the lest accessible to mankind. The five species of Auks and Guillemots appear in spring, and vanish in autumn: the other birds preserve their native haunts, or fpread along the neighboring shores.

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From Bamborough to the mouth of the Tweed is a fandy shore, narrowing as it approaches our fifter kingdom. Lindesfarn, or the Holy Island, with its ruined cathedral and castle, lie remote from coast, accessible at every recess of tide, and possibly divided from Northumberland by the power of the waves in diftant ages. The tides do not swell over this tract in the usual manner of apparent flowing and gradual approach; but ooze gently out of every part of the fand, which at first appears a quaggy extent, then, to the terror of the traveller, furrounds him with a shining plain of smooth unruffled water, reflecting the varied landscapes of the adjoining shores \*.

The Tweed, the antient Alaunus, a narrow geographical boundary between us and our fellow-fubjects the Scottish nation, next succeeds. After a short continuance of low land, St. Ebb's head, a lofty promontory, pro- St. Ebb's Head. jects into the sea (frequented in the season by RAZOR-BILLS, GUILLEMOTS, and all the birds of the Bass, excepting the GANNET) and its lower part is hollowed into most august caverns. This, with Fifeness, about thirty

SCOTLAND.

miles distant, forms the entrance into that magnificent estuary the firth of FIRTH OF FORTH.

\* Mr. Hutchinson, ii. 151.



Forth, which extends inland fixty miles; and, with the canal from Carron to the firth of Clyde, intirely infulates the antient Caledonia. The ifle of May appears near the northern fide of the entrance; the vaft towering rock, the Bass, lies near the fouthern. This lofty island is the summer refort of birds innumerable, which, after discharging the first duty of nature, feek, with their young, other shores or other climates. This is one of the few fpots in the northern hemisphere on which the GANNETS nestle. Their fize, their fnowy plumage, their eafy flight, and their precipitate plunge after their prey, diftinguish them at once from all the rest of the feathered tenants of the isle, the Corvorants and Auks, the slights of whom are rapid, and the Gulls, which move with fluggish wing.

Near the Bass the entrance narrows, then opens, and bending inwards, forms on each fide a noble bay. The Firth contracts to a very narrow streight at Queensferry; then winds beautifully, till it terminates beyond Alloa, in the river to which it owes its name. The coafts are low, in part rocky, in part a pleafant beach; but every where of matchless beauty and population. Edinburgh, the capital, rifes with true grandeur near the shore, with its port, the great emporium, Leith, beneath, where the springtides fometimes rife fifteen and fixteen feet, and to feventeen or eighteen when the water is forced up the firth by a violent wind from the northeast. Almost every league of this great effuary is terminated with towns or villages, the effects of trade and industry. The elegant description of the coast of Fife, left us by Johnston\*, is far from being exaggerated; and may, with equal justice, be applied to each shore.

FIFESHIRE, bounded by the firths of Forth and Tay, projects far into the fea; a country flourishing by its industry, and happy in numbers of ports, natural, artificial, or improved. Coal and lime, the native productions of the county, are exported in vast quantities. Excepting the unimportant colliery in Sutherland, those at Largo Wood, midway between the bay and St. Andrews, are the last on this side of North Britain. The coasts in general of this vast province are rocky and precipitous; but

COAL, ITS EXTENT.

\* See Tour in Scotland, 1772. part ii. p. 212.

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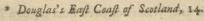
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far from being lofty. The bays, particularly the beautiful one of Largo, are finely bounded by gravelly or fandy shores; and the land, in most parts, rifes high to the middle of the county. Towards the northern end, the river Edin, and its little bay, by fimilarity of found point out the Tinna of the old geographer.

The estuary of the Tay limits the north of Fifesbire. Before the mouth FIRTH OF TAY. extends the fand retaining the British name of Aber-tay, or the place where the Tay discharges itself into the sea. The Romans preserved the antient name, and Latinized it into Tava. The entrance, at Brough-tay castle, is about three quarters of a mile wide; after which it expands, and goes about fourteen miles up the country before it assumes the form of a river. At the recess of the tides there appears a vast extent of fands, and a very shallow channel; but the high tides wast, even as high as Perth, vessels of a hundred and twenty tons. The shores are low, and the ground rises gently inland on the fouthern fide: on the north it continues low, till it arrives at the foot of the Grampian hills, many miles diftant. In fome remote age the fea extended on the north fide far beyond its prefent bounds. At a confiderable distance above the flourishing port of Dundee, and remote inland, anchors have been found deep in the foil \*. When thefe parts were deferted by the sea, it is probable that some opposite country was devoured by an inundation, which occasioned this partial defertion.

From thence to Aberbrothic, in the shire of Angus, noted for the venerable remains of its abbey, is a low and fandy shore. From Aberbrothic almost to Montrose, arises a bold rocky coast, lofty and precipitous, except where interrupted by the beautiful semicircular bay of Lunan. Several of the cliffs are penetrated by most amazing caverns; some open into the fea with a narrow entrance, and internally instantly rise into high and fpacious vaults, and fo extensively meandring, that no one as yet has had the courage to explore the end. The entrance of others shame the work of art in the noblest of the Gothic cathedrals. A magnificent portal appears divided in the middle by a great column, the basis of which sinks





ISLAND. BASS

deep in the water. Thus the voyager may pass on one side in his boat, survey the wonders within, and return by the opposite side.

The cavern called the Geylit-pot, almost realises in form a fable in the Persian Tales. The hardy adventurer may make a long subterraneous voyage, with a picturesque scenery of rock above and on every side. He may be rowed in this solemn scene till he finds himself suddenly restored to the sight of the heavens: he finds himself in a circular chasm, open to the day, with a narrow bottom and extensive top, widening at the margin to the diameter of two hundred seet. On attaining the summit, he finds himself at a distance from the sea, amidst corn-fields or verdant pastures, with a fine view of the country, and a gentleman's seat near to the place from which he had emerged. Such may be the amusement of the curious in summer calms! but when the storms are directed from the east, the view from the edge of this hollow is tremendous; for, from the height of above three hundred seet, they may look down on the furious waves, whitened with foam, and swelling from their confined passage.

Peninfulated rocks often jut from the face of the cliffs, precipitous on their fides, and washed by a great depth of water. The isthmus which joins them to the land, is often so extremely narrow as to render it impassable for more than two or three persons a-breast; but the tops spread into verdant areas, containing vestiges of rude fortifications, in antient and barbarous times the retreat of the neighboring inhabitants from the rage of a potent invader\*.

MONTROSE.

Montrose, peninsulated by the sea, and the bason its beautiful harbour, stands on a bed of sand and gravel. The tide rushing suriously through a narrow entrance twice in twenty-sour hours, fills the port with a depth of water sufficient to bring in vessels of large burden. Unfortunately, at the ebb they must lie dry; for none exceeding sixty tons can at that period float, and those only in the channel of the South Esk, which, near Montrose, discharges itself into the sea.

A fandy coast is continued for a small distance from Montrose. Rude

\* These descriptions borrowed from my own Tours.

ROCKSmar BANIFF.

rocky



rocky cliffs re-commence in the county of Merns, and front the ocean. Among the highest is Fowls-heugh, noted for the resort of multitudes of fea-birds. Bervie and Stonebive are two small ports overhung with rocks; and on the summit of a most exalted one, are the vast ruins of Dunnoter, once the property of the warlike family of the Keiths. The rocks adjacent to it, like the preceding, assume various and grotesque forms.

A little farther the antient Deva, or Dee, opens into the sea, after forming a harbour to the fine and flourishing town of Aberdeen. A fandy coast continues for numbers of miles, part of which is fo moveable as almost totally to have overwhelmed the parish of Furvie: two farms only exist, out of an estate, in 1600, valued at five hundred pounds a year.

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A majestic rocky coast appears again. The Bullers of Buchan, and the noble arched rock, so finely represented by the pencil of the Reverend Mr. Cordiner\*, are justly esteemed the wonders of this country. The former is an amazing harbour, with an entrance through a most august arch of great height and length. The infide is a fecure bason, environed on every fide by mural rocks: the whole projects far from the main land, and is bounded on each fide by deep creeks; fo that the traveller who chuses to walk round the narrow battlements, ought first to be well affured of the strength of his head.

A little farther is Peterhead, the most eastern port of Scotland, the common retreat of wind-bound ships; and a port which fully merits the attention of government, to render it more fecure. Kinnaird-head, the Taizalum promontorium, lies a little farther north, and, with the northeastern extremity of Cathness, forms the firth of Murray, the Tua Æstuarium, a bay of vast extent. Troup-head is another vast cape, to the west of the former. The caverns and rocks of that promontory yield to none in magnificence and fingularity of shape: of the latter, some emulate the SINGULAR ROCKS, form of lofty towers, others of inclining pyramids with central arches, pervious to boats. The figures of these are the effect of chance, and owing to the collision of the waves, which wearing away the earth and

BULLERSOF BUCHAN.

PETERHEAD.

HOW FORMED.

\* Antiquities and Scenery of Scotland, letter vi. plates ii. iii.

crumbly



crumbly parts, leave them the just subjects of our admiration. Sea-plants, shells, and various forts of marine exfanguious animals, cloath their bases, washed by a deep and clear sea; and their summits resound with the various clang of the feathered tribe.

From hence the bay is bounded on the fouth by the extensive and rich plains of Murray. The shore wants not its wild beauties. The view of the noble cavern, called the rocks of Caussie, on the shore between Burghbead and Losse mouth, drawn by Mr. Cordiner, fully evinces the affertion. The bottom of the bay closes with the firth of Inverness, from whence to the Atlantic ocean is a chain of rivers, lakes, and bays, with the interruption only of two miles of land between Loch-oich and Loch-lochy. Unite those two lakes by a canal, and the rest of North Britain would be completely infulated.

To the north the firth of Cromartie, and the firth of Tayne, the Vara

Æstuarium, penetrate deep into the land. From Dornoch, the coast of Sutherland is low and fandy, except in a few places: one, at the water of Brora, is diffinguished by the beauty of the rocky scenery; in the midst of which the river precipitates itself into the sea, down a lofty precipice. The Scottish Alps, which heretofore kept remote from the shore, now approach very near; and at the great promontory, the Ripa Alta of Ptolemy, the Ord, i. e. Aird of Cathness, or the Height of Cathness, terminate in a most sublime and abrupt manner in the sea. The upper part is covered with gloomy heath; the lower is a stupendous precipice, excavated into vast caverns, the haunt of Seals and different sea-fowl. On the eastern fide of the kingdom, this is the striking termination of the vast mountains HIGHLAND ALPS. of Scotland, which form its Highlands, the habitation of the original inhabitants, driven from their antient feats by the ancestors of Lowland Scots, descendants of Saxons, French, and Normans, congenerous with the English, yet absurdly and invidiously distinguished from them. Language, as well as striking natural boundaries, mark their place. Their mountains face on the west the Atlantic ocean; wind along the west of Cathness; among which Morvern and Scaraben, Ben-Hop and Ben-Lugal, arise preeminent. Sutherland is entirely Alpine, as are Ross-shire and Inverness-

ORD OF CATH-

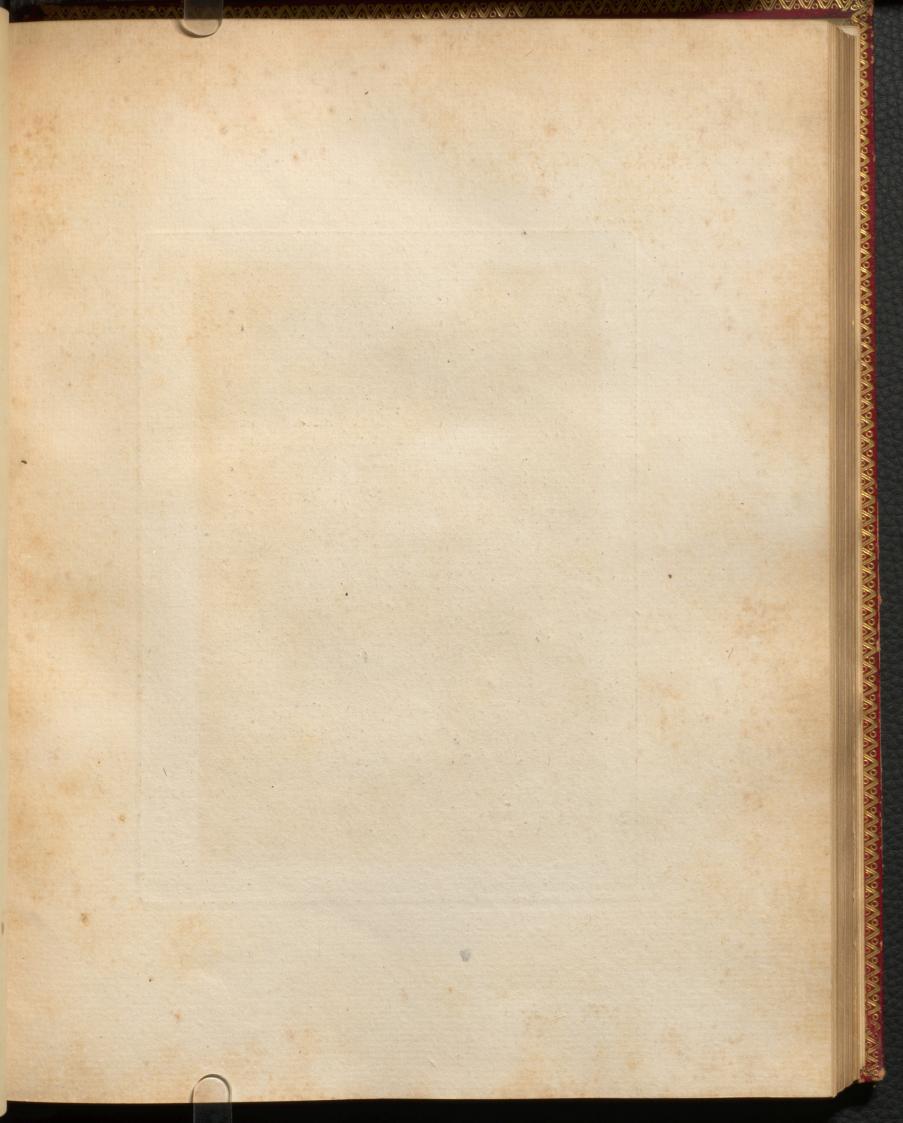


CROMARTIE BAY.

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CAVES OF CAUSSIE.





fbire. Their Summa Alpes are, Meal Fourvounich, the Coryarich, Benewish, and Benevish near Fort William; the last of which is reported to be fourteen hundred and fifty yards in height. Great part of Aberdeenshire lies in this tract. It boasts of another Morvern, soaring far beyond the others: this is in the centre of the Grampian bills, and perhaps the highest from the sea of any in Great Britain. They again comprehend the eastern part of Perthshire, and finish on the magnificent shores of Loch-lomond, on the western side of which Ben-lomond rises, distinguished among its fellows. From hence the rest of North Britain forms a chain of humbler hills; but in Cumberland, part of Westmoreland, Yorkshire, Lancashire, and Derbyshire, the Alps resume their former majesty. A tedious and tame interval fucceeds. The long fublime tract of Wales arises, the antient possession of the antient British race. From the Ord, the great mountains recede inland, and leave a vast flat between their bases and the sea, fronting the waves with a feries of lofty rocky precipices, as far as the little creek of Staxigo; the whole a bold, but most inhospitable shore for thipping. Wick and Staxigo have indeed their creeks, or rather chafms, which open between the cliffs, and may accidentally prove a retreat, unless in an eastern gale.

Sinclair and Freswick bays are sandy, and afford safe anchorage: from the last the country rises into losty cliffs, many composed of small strata of stones, as regular as a mason could lay them; and before them rise insulated stacks or columns of similar materials, some hollowed into arches; others, pillar-like, aspire in heights equal to the land \*. These are animated with birds. All their occonomy may be viewed with ease from the neighboring cliffs; their loves, incubation, exclusion, and nutrition. I propose, as examples of magnificent views, Boddam castle, Dunby bead, and Finlater castle, in the Reverend Mr. Cordiner's Views in North Britain; the Bullers of Buchan, the perforated rock near them, the perforated pyramid near Banff, and the insulated column off Cathness, in his Letters on the Scenery and Antiquities of the North of Scotland.

\* See Mr. Cordiner's beautiful view of a flack of this kind, tab. xv.

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ENGLISH.

CAMBRIAN.

DUNGSBY-HEAD.

Dungsby-head, the antient Berubium, terminates the eastern side of this kingdom, as Far-out-head, the old Tarvedum, does the western. Strathy-head, the Vervedrum of Ptolemy, lies intermediate. The whole tract faces the north, and consists of various noted headlands, giving shelter to numerous bays, many of which penetrate deep into the country. Let me make this general remark,—that nature hath, with a niggardly hand, dealt out her harbours to the eastern coasts of the British isles; but shewn a profusion on their western sides. What numberless lochs, with great depth of water, wind into the western counties of Scotland, overshadowed and sheltered by losty mountains! and what multitudes of noble harbours do the western provinces of Ireland open into the immense Atlantic ocean! A few estuaries, such as the Humber and Tinmouth, open into the land of England; and what are called firths in Scotland, distantly placed by nature, are the only ports of the eastern coasts.

GERMAN OR NORTH SEA.

The fea which washes the shores of Britain, which have passed under my review, was originally called, by one of the antients \*, Oceanus Britannicus, forming part of that vast expanse which furrounds our islands. Pling confined that title to the space between the mouth of the Rhine and that of the Seine; and bestowed on this sea the name of Septentrionalis +; and Ptolemy called it Germanicus: both which it still retains. Its northern extremity lies between Dungsby-head, in lat. 58, 35 north, and the same latitude in the fouth of Norway. Before the separation of Britain from Gaul it could only be confidered as a vast bay; but that period is beyond the commencement of record. The tides flow into it from the north-east to the fouth-west, according to the direction of the coast; but in mid-sea the reflux fets to the north, to discharge itself through the great channel between the Schetland isles and Norway ‡. The depth of water, at highest spring-tides, in the streights of Dover, is twenty-five fathoms: it deepens to thirty-one, between Lowstoff and the mouth of the Maes: between the Wells-bank and Doggers-bank gains, in one place only, a few fathoms. Beyond the Dogger it deepens from forty-eight to feventy-two: between

Tides, THEIR DIRECTION;

DEPTHS.

\* Mela. + Plin. lib. iv. c. 19.

\$ Mr. William Ferguson.

Buchan-

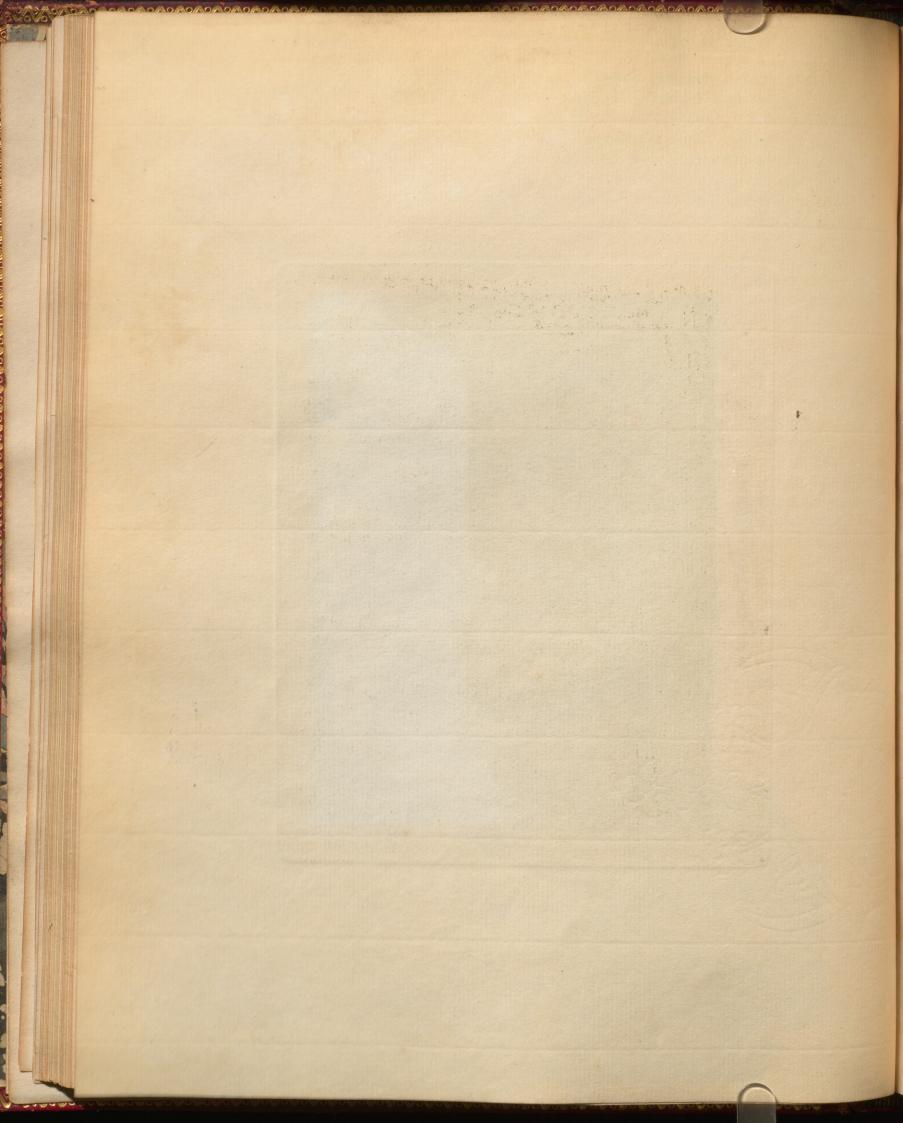
## DUNBRATH CASTLE.

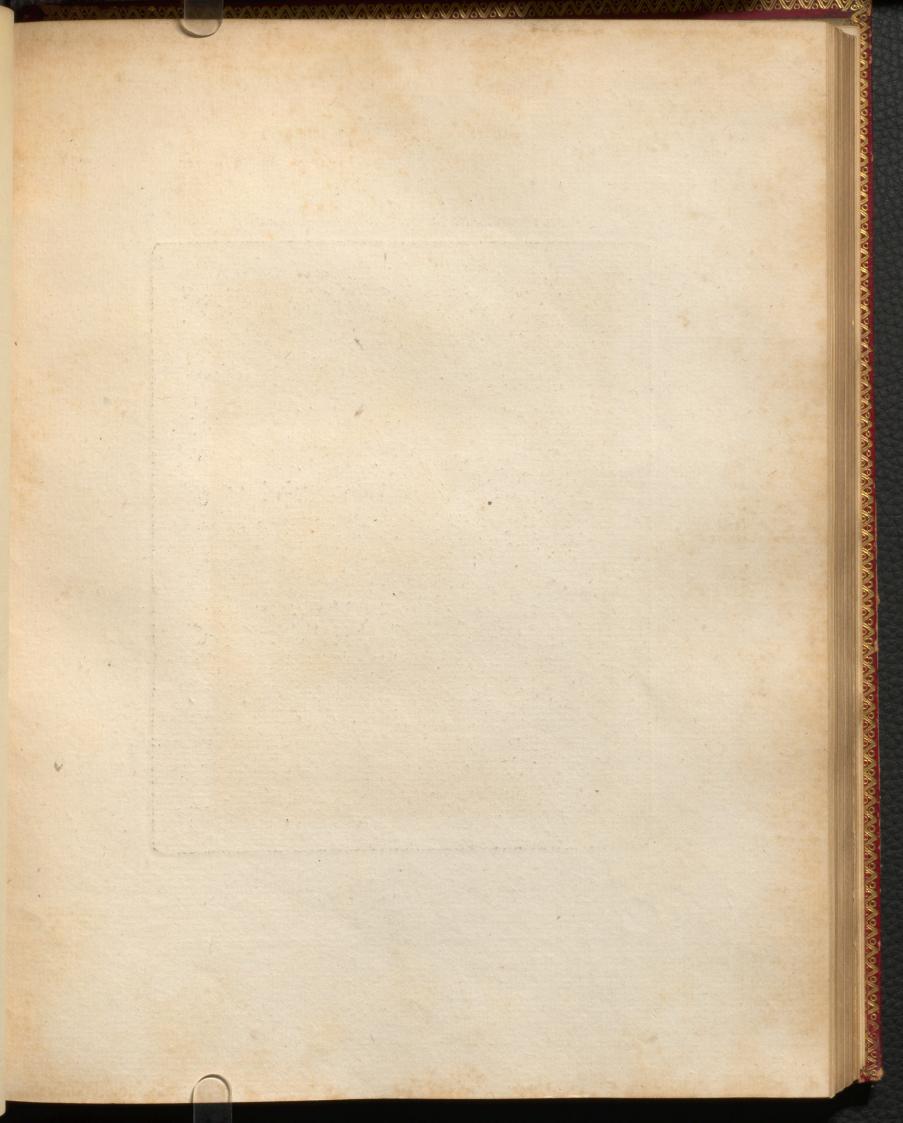




ROCKS near SANDSIDE.

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Buchan-nefs and Schutnefs in Norway, within the Buchan-deeps, it has from eighty-fix to a hundred fathoms; then decreases, towards the Orkney and Schetland isles, from seventy-five to forty; but between the Schetlands and Bergen, the northern end of this sea, the depth is from a hundred and twenty to a hundred and fifty fathoms.

The coasts from Dungsby-head to Flamborough-head are bold and high, and may be seen at sea from seven to sourteen leagues: from the last to Spurn-head is also a clear coast; but the rest of the coast of Norfolk and Suffolk is low, visible at small distance, and rendered dangerous by the number of sand-banks projecting far to sea. After passing the Spurn-head, navigators steer between the inner and outer Dousings, for the floating light kept on board a small vessel (constructed for that purpose) always anchored at the inner edge of a sand called Dogshon's Shoal, about eight leagues from the coast of Lincolnshire, in about sisteen fathom water. From thence they make for Cromer in Norfolk; and from that point, till they arrive at the Nore, their track is all the way through a number of narrow channels near the most dangerous sands: to which, if we add foggy weather, dark nights, storms, contrary winds, and very near adjacent lee-shores, it may be very fairly reckoned the most dangerous of the much-frequented navigations in the world.

In these seas, off the coast of Norfolk, James II. when duke of York, had the ill fortune to escape shipwreck, to have closed a life of glory, and to have prevented the calamities which befel himself, his posterity, and kingdoms, which a conduct of which he had begun to give symptoms, brought upon them. In the fort of exile he was obliged to take to Scotland, on May 5th, 1682, his frigate struck on the Lemon and Ore, two dreadful sands off Winterton-ness. His Highness, with some few, were preserved: several people of quality perished. Malevolence says, that the duke called out to save his dogs, his priests, and his favorite, the lord, asterwards duke of Marlborough. His Highness certainly had not the gift of prescience, or he would not have classed in his saving orders his grace with the most faithful of animals. His Highness shewed on this occasion his usual intrepidity. A medal was struck of a finking ship, with the

NAVIGATION.



motto Impavidum feriunt. The heroism and loyalty of the common men who were left behind, had the fullest clame to every honor. On seeing their popular and beloved commander out of danger, they gave three loud cheers, and on the third sunk exulting to the bottom.

SAND-BANKS.

But fortunately, to the rorth of these, this sea is much more remarkable for fand-banks of utility than of danger, and would never have been observed but for the multitudes of sishes which, at different seasons, according to their species, resort to their sides, from the great northern deeps, either for the sake of variety of sood which they yield, or to depose their spawn in security. The first to be taken notice of does not come within the description, yet should not be passed over in silence, as it comes within the natural history of the North sea. An anonymous sand runs across the channel between Buchan-ness and the north end of Juts-riff: the lest depth of water over it is forty fathoms; so that it would scarcely be thought of, did not the water suddenly deepen again, and form that place which is styled the Buchan-deeps.

Long Fortys,

The Long Bank, or the Long Fortys, bears E.S. E. from Buchan-ness, about forty-five miles diftant, and extends fouthward as far as opposite to Newcastle; is about fifty leagues in length, and seven in breadth; and has on it from thirty-two to forty-five fathoms of water. The ground is a coarse gravel, mixed with marine plants, and is esteemed a good fishing bank.

The Mar Bank lies between the former and the shore opposite to Berwick; is oval, about sifteen miles long, and has about twenty-six fathom of water, and round it about forty.

MONTROSE PITS.

The bank called Montrofe Pits lies a little to the east of the middle of the Long Fortys. It is about fifty miles long, and most remarkable for five great pits or hollows, from three to four miles in diameter: on their edges is only forty fathom water; yet they suddenly deepen to seventy, and even a hundred fathom, on a soft muddy bottom: the margins on the contrary are gravelly. I enquired whether the surface of this wonderful bank appeared in any way agitated, as I had suspicion that the pits might have been productive of whilpools; but was informed, that the sea there exhibited no uncommon appearance.

The noted Doggers Bank next fucceeds. It commences at the distance Doggers Bank. of twelve leagues from Flamborough-head, and extends across the sea, nearly east, above seventy-two leagues, joining Horn-riff, a very narrow strip of fand which ends on the coast of Juland. The greatest breadth is twenty leagues; and in parts it has only on it ten or eleven fathoms of water, in others twenty-four or five. To the fouth of the Dogger is a vast extent of fand-bank, named, in different parts, the Well Bank, the Swart Bank, and the Brown Bank, all covered with fufficient depth of water; but between them and the British coasts are the Ore and the Lemon, dreaded by mariners, and numbers of others infamous for shipwrecks. The channel between the Dogger Bank and the Well Bank deepens even to forty fathoms. This hollow is called the Silver Pits, and is noted for the cod-fishery which supplies the London markets. The cod-fish love the deeps: the flat-fish the shallows. I will not repeat what I have, in another place, fo amply treated of \*. I must only lament, that the fisheries of this bank are only subservient to the purposes of luxury. Was (according to the plan of my humane friend, Mr. Travis of Scarborough) a canal formed from any part of the neighboring coast to that at Leeds, thousands of manufacturers would receive a cheap and wholesome food; infurrections in times of scarcity of grain be prevented; our manufactures worked at an eafy rate; and our rivals in trade thereby underfold.

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In the late fatal war, when Britain had all Europe to contend with, as fecret or open enemies, aiding the defection of its own long-fostered children, the Dutch drew on themselves an indignation which perhaps it might have been prudent to suppress. The states exerted their reliques of naval life; which emitted its last sparks on August 5th, 1781, off the Dogger Bank. Our gallant veteran, vice-admiral Hyde Parker, commanded our little fleet of fix ships of the line, opposed to eight two-deckers commanded by admiral Zoutman. The Dutch, disused to arms for a long series of years, collected their antient valour: neither the British nor Belgic lion

WELL BANK.

SEA FIGHT OFF THE DOGGER BANK IN 1781.

\* See Br. Zool. iii. Articles Haddeck, Ling, and Turbot.

feemed

feemed to have degenerated: the Dutch lost one ship of the line, sent to the bottom. The rest sought the safety of the Texel, and never more vindicated the dominion of the sea.

I have, to the best of my abilities, enumerated the British sish, in the third volume of the British Zoology. The Faunula which I have prefixed to Mr. Lightfoot's Flora Scotica, contains those which frequent the northern coasts of Great Britain; in which will be found wanting many of those of South Britain. The Reverend Mr. LIGHTFOOT, in that work, hath given a most elaborate account of the submarine plants of our northern sea.

CALEDONIAN OCEAN.

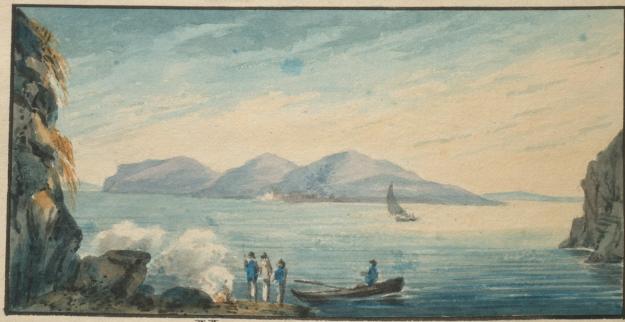
ORKNEY ISLANDS. I will now pursue my voyage from the extreme shores of North Britain through a new ocean. Here commences the Oceanus Caledonius, or Deucaledonius, of Ptolemy; a vast expanse, extending to the west as far as Greenland, and to the extreme north. This I should call the Northern Ocean, distinguishing its parts by other names suitable to the coasts. From Dungsby-head the Orkney islands appear spreading along the horizon, and yield a most charming prospect. Some of them are so near as distinctly to exhibit the rocky fronts of those bold promontories which sustain the weight of the vast currents from the Atlantic. Others shew more faint: their distances finely expressed as they retire from the eye, until the mountains of the more remote have scarcely a deeper azure than the sky, and are hardly discernible rising over the surface of the ocean \*.'

STROMA.

Between these and the main land, about two miles from the Cathness shore, lies Stroma, the Ocetis of Ptolemy, a little island, an appertenance to that country, fertile by the manual labor of about thirty families; pleasant, and lofty enough for the resort of the Auk tribe. The noted mummies are now lost, occasioned by the doors of the caverns in which they were deposited being broken down, and admission given to cattle, which have trampled them to pieces. This catacomb stands on a neck of land

\* Mr. Cordiner's elegant description, p. 85.

bounded



VIEW of the ORKNEYS.

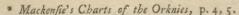
bounded by the sea on three sides. The falt air and spray expels all infects, and is the only prefervation the bodies have; fome of which had been lodged here a great number of years. In many of the isles, the inhabitants use no other method for preserving their meat from putrefaction than hanging it in caves of the fea, and the method is vindicated by the fuccess.

This island lies in the Pentland Firth, noted for the violence of the tides; tremendous to the fight, but dangerous only when passed at improper times. They fet in from the north-west: the flood, on the contrary, on the coasts of Lewis, pours in from the fouth \*. The tide of flood upon Stroma (and other islands similarly situated in mid-stream) divides or splits before it reaches it. A current runs with great violence on both fides, then unites, at some distance from the opposite end, and forms a fingle current, running at fpring-tides at the rate of nine knots an hour; at neap, at that of three only. The space between the dividing tides, at different ends of an island, is quite stagnant, and is called the eddy. Some of them are a mile or two long, and give room for a ship to tack to and fro, till the tides are so far spent as to permit it to pursue its voyage.

The most boisterous parts of the streams are at the extremities of the THE SWELCHIE island, and a little beyond the top of the eddy, where they unite. The collision of these opposite streams excite a circular motion, and, when the tide is very strong, occasion whirlpools in form of an inverted bell, the largest diameter of which may be about three feet. In spring-tides they have force enough to turn a veffel round, but not to do any damage: but there have been instances of small boats being swallowed up. These whirlpools are largest when first formed; are carried away with the stream, and disappear, but are quickly followed by others. The spiral motion or fuction does not extend far beyond the cavity: a boat may pass within twenty yards of these whirlpools with safety. Fishermen who happen to find themselves within a dangerous distance, sling in an oar, or any bulky

TIDES.

OF STROMA.





STROMA from JOHN a GROT'S.

body, which breaks the continuity of the furface, and interrupts the vertiginous motion, and forces the water to rush fuddenly in on all sides and fill up the cavity. In ftormy weather, the waves themselves destroy this phænomenon. A funk rock near the concourse of these rapid tides occafions a most dreadful appearance. The stream meeting with an interruption, falls over with great violence, reaches the bottom, and brings up with it fand, shells, fishes, or whatsoever else it meets with; which, with boats, or whatfoever it happens to meet, is whirled from the centre of the eruption towards the circumference with amazing velocity, and the troubled furface boils and bubbles like a great cauldron, then darts off with a fuccession of whirlpools from fuccessive ebullitions. These are called Rousts, and are attended with the utmost danger to small boats, which are agitated to fuch a degree, that (even should they not be overset) the men are Aung out of them, to perish without any chance of redemption. It is during the ebb that they are tremendous, and most fo in that of a springtide with a west wind, and that in the calmest weather; for during flood they are passed with the greatest safety. Vessels in a calm are never in danger of touching on an island or visible rock, when they get into a current, but are always carried fafe from all danger.

Swona, a little island, the most southern of the Orknies, is about sour miles beyond Stroma, and is noted for its tremendous streams, and in particular the whirlpools called the Wells of Swona, which in a higher degree exhibit all the appearances of the former. What contributes to encrease the rage of the tides, besides their consinement between so many islands, is the irregular position of the sounds, and their little depth of water. The same shallowness extends to every side of the Orknies; an evidence that they had once been part of the mother isle, rent from it by some mighty convulsion. The middle of the channel, between Stroma and the main land, has only ten fathom water: the greatest depth around that island is only eighteen. The sounds are from three to forty-six fathom deep: the greater depths are between South Ronaldsha and South Wales; for in general the other sounds are only from three to thirteen;

SWON A.

Rousts.

DEPTH OF WATER.

and

and the circumambient depth of the whole group very rarely exceeds twenty-five.

About these islands commences a decrease of the tides. They lie in a great ocean, in which the waters have room to expand; therefore never experience that height of flood which is constant in the contracted seas. Here ordinary spring-tides do not exceed eight feet; and very extraordinary spring-tides fourteen, even when acted on by the violence of the winds \*.

The time of the discovery and population of the Orknies is unknown. Probably it was very early; for we are told that they owe their name to the Greeks.

Orcades has memorant dictas a nomine Graco +

Mela and Pliny take notice of them; and the last describes their number and clustered form with much accuracy t. The steet of Agricola sailed round them, and made a conquest of them; but the Romans probably never retained any part of Caledonia. I found no marks of them beyond Orrea or Inchtuthel &, excepting at Fortingal || in Breadalbine, where there is a small camp, possibly no more than a temporary advanced post. Notwithstanding this, they must have had, by means of shipping, a communicated knowlege of the coasts of North Britain even to the Orcades.

Ptolemy hath, from information collected by those means, given the names of every nation, considerable river, and head-land, on the eastern, northern, and western coast. But the Romans had forgotten the navigation of these seas, otherwise the poet would never have celebrated the courage of his countrymen, in sailing in pursuit of the plundering Saxons through unknown streights, and a naval victory obtained off these islands by the forces fent to the relief of the distressed Britons by Honorius,

Quid Sidera profunt?

Ignotumque fretum? Maduerunt Saxone fuso

Orcades ¶.

\* Murdoch Mackensse. + Claudian. † Mela, lib. iii. c. 6. Plin. lib. iv. c. 16. § Tour Scotl. 1772. p. 70. || Same, p. 25. ¶ Claudian, de iv. Cons. Honorii.

PALACE at BYRSA.

Tides, DE-CREASE OF.

## ORKNEYWOMAN

at the QUERN.





LANGUAGE.

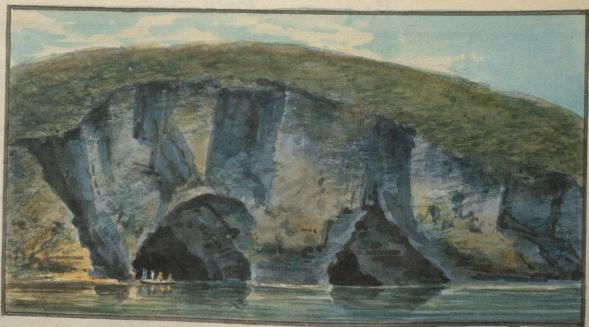
ROCKS OF THE ORKNIES.

BIRDS.

The Orkney isles in after times became possessed by the Pitts; and again by the Scots. The latter gave way to the Norwegian pirates, who were fubdued by Harold Harfargre about the year 875 \*, and the islands united to the crown of Norway. They remained under the Norwegians till the year 1263, accepted their laws, and used their language. The Norse, or Norwegian language was generally used in the Orkney and Schetland islands even to the last century: but, except in Foula, where a few words are still known by the aged people, it is quite lost. The English tongue, with a Norwegian accent, is that of the islands; but the appearance of the people, their manners and genius, evidently shew their northern origin. The islands vary in their form and height. Great part of Hoy is mountanous and lofty. The noted land-mark, the hill of Hoy, is faid to be five hundred and forty yards high. The fides of all these hills are covered with long heath, in which breed multitudes of Curlews, Green Ployers; REDSHANKS, and other Waders. The SHORT-EARED OWL is also very frequent here, and nestles in the ground. It is probable that it is from hence, as well as from Norway, that it migrates, in the beginning of winter, to the more fouthern parts of Britain. Most of the Waders migrate; but they must receive considerable reinforcements from the most diftant parts of the north, to fill the numbers which cover our shores. The cliffs are of a most stupendous height, and quite mural to the very fea. The Berry Head is an exalted precipice, with an august cave at the bottom, opening into the fea. The ERN FAGLES possess, by distant pairs, the upper part of the rocks: neither these nor any other Falcons will bear fociety; but, as Pliny elegantly expresses it, Adultos persequitur parens et longe fugat, æmulos scilicet rapinæ. Et alioquin unum par aquilarum magno ad populandum tractu, ut satietur, indiget +. Auks, Corvo-RANTS, and all the tribes which love exalted fituations, breed by thoufands in the other parts. The TYSTE, or BLACK GUILLEMOT, fecures itself in a crack in the rock, or by scraping a burrow in the little earth it may find; there it lays a fingle egg, of a dirty olive blotched with a

\* Torfæus Rer. Orcad. lib. i. c. 3. p. 10. + Hift. Nat. lib. x. c. 3.

CAVE al BYRSA.



darker.

darker. This species never migrates from the Orknies. The Foolish Guillemot continues till November. The Little Auk, a rare bird in other parts of Britain, breeds in the holes of the losty precipices. And the Lyre, or the Sheerwater, burrows in the earth among the rocks of Hoy and Eda, and forms an article of commerce with its seathers, and of food with its slesh, which is salted and kept for the provision of the winter. In that season they are seen skimming the ocean at most surprizing distances from land. The Stormy Petrel breeds frequently among the loose stones; then takes to sea and affrights the superstitious sailor with its appearance. Woodcocks scarcely ever appear here. Fieldfares make this a short baiting-place: and the Snow Bunting often alights and covers whole tracts of country, driven by the frost from the farthest north.

A few WILD SWANS breed in some lochs in Mainland; but the greatest part of these birds, all the Bernacles, Brent Geese, and several other palmated birds, retire in the spring to more northern latitudes. But to the SWALLOW-TAILED DUCK, the PINTAIL, and a few others, this is a warm climate; for they retire here to pass their winters in the sheltered bays. Any other remarks may be intermixed with those on Schetland; for there is great similarity of subjects in both the groups.

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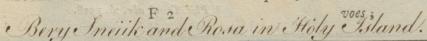
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The last lie about sixty miles to the north-east of the most northern Orkney. Midway is Fair Island, a spot about three miles long, with high and rocky shores, inhabited by about a hundred and seventy people: an industrious race; the men sishers; the women knitters and spinners. The depth of water round varies to twenty-six fathoms. The tide divides at the north end, runs with great velocity, and forms on the east side a considerable eddy.

Schetland confifts of feveral islands. Mainland, the principal, extends from fouth to north twenty-eight leagues, and is most singularly formed; consisting of an infinite number of peninsulæ connected by very narrow isthmuses. That called Mavisgrind, which unites the parish of North Maven, is only eighty yards broad. But the irregular shape of this island occasions it to abound with the finest and most secure ports, called here

FAIR ISLE.

SCHETLAND.





voes; a most providential dispensation in a sea which swarms with fishes of the most general use, otherwise there would be no retreat for the veffels employed in a commerce of fuch benefit to mankind. The adjacent islands are in general so near to the mother island, and their headlands point fo exactly to its corresponding capes, that it is highly probable that they once made a part of the Mainland. The rocks and stacks assume great variety of forms, such as steeples and Gothic cathedrals rifing out of the water, fleets of ships, and other fancied shapes, The Dorebolm, in the parish of North Maven, is very singular: part is rounded, the rest seems a ruin, composed of a single thin fragment of rock, with a magnificent arch within, feventy feet in height.

To use the words of Captain Thomas Preston, to whom we are indebted for an excellent chart of this group, 'the land is wild, barren, and mountanous; nor is there fo much as a bush or a tree to be seen. The fhores are difficult, and in many parts inacceffible; rude, steep, and

- ' iron-like; the fight of which strikes the mind with dread and horror; and fuch monftrous precipices and hideous rocks as bring all Brobding-
- ' nag before your thoughts. These islands lie between lat. 60 to 61. In
- winter the fun fets foon after it rifes, and in fummer rifes foon after it fets; fo that in that feafon the nights are almost as light as the day; as
- on the contrary, in December the day is nearly as dark as the night.
- About the folftice, we fee every night the aurora borealis, or, as they are
- called by the natives, the merry dancers, which spread a broad glaring appearance over the whole northern hemisphere \*.

AURORA BORE-ALIS.

LENGTH OF DAYS.

> They are the constant attendants of the clear evenings in all these northern islands, and prove great reliefs amidst the gloom of the long winter nights. They commonly appear at twilight near the horizon, of a dun color, approaching to yellow: formetimes continuing in that state for feveral hours without any fensible motion; after which they break out into streams of stronger light, spreading into columns, and altering slowly into ten thousand different shapes, varying their colors from all the tints of yellow to the obscurest russet. They often cover the whole hemisphere,

> > \* Phil. Trans. abr. xi. 1328. CHURCH, of DEERNE, SS



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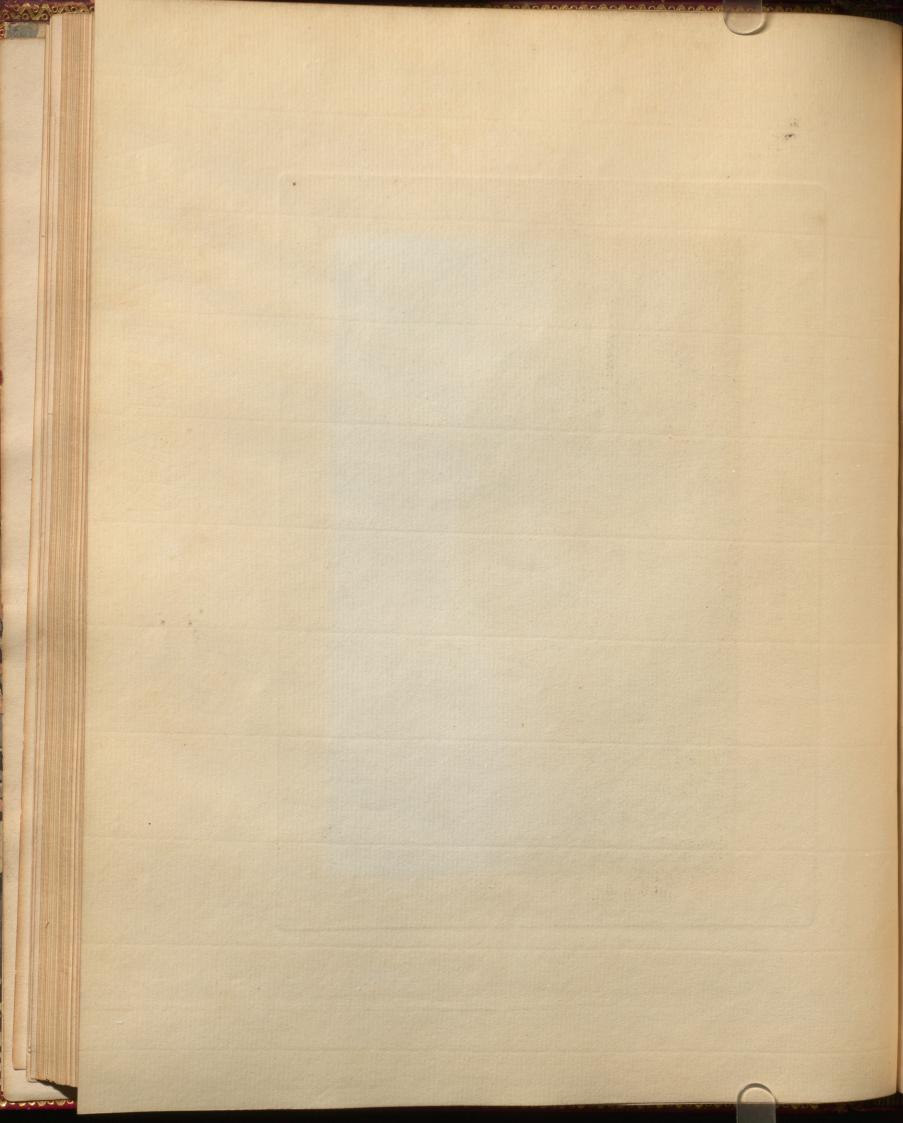
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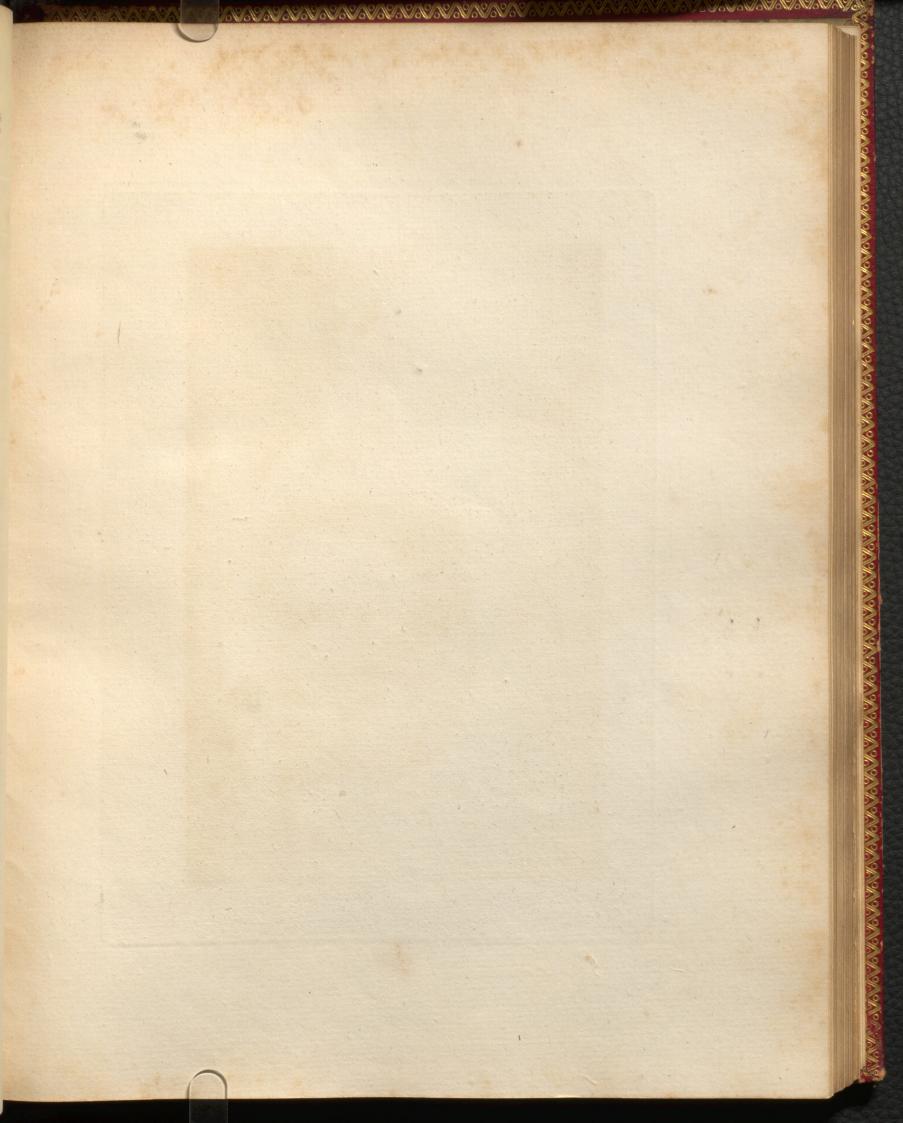
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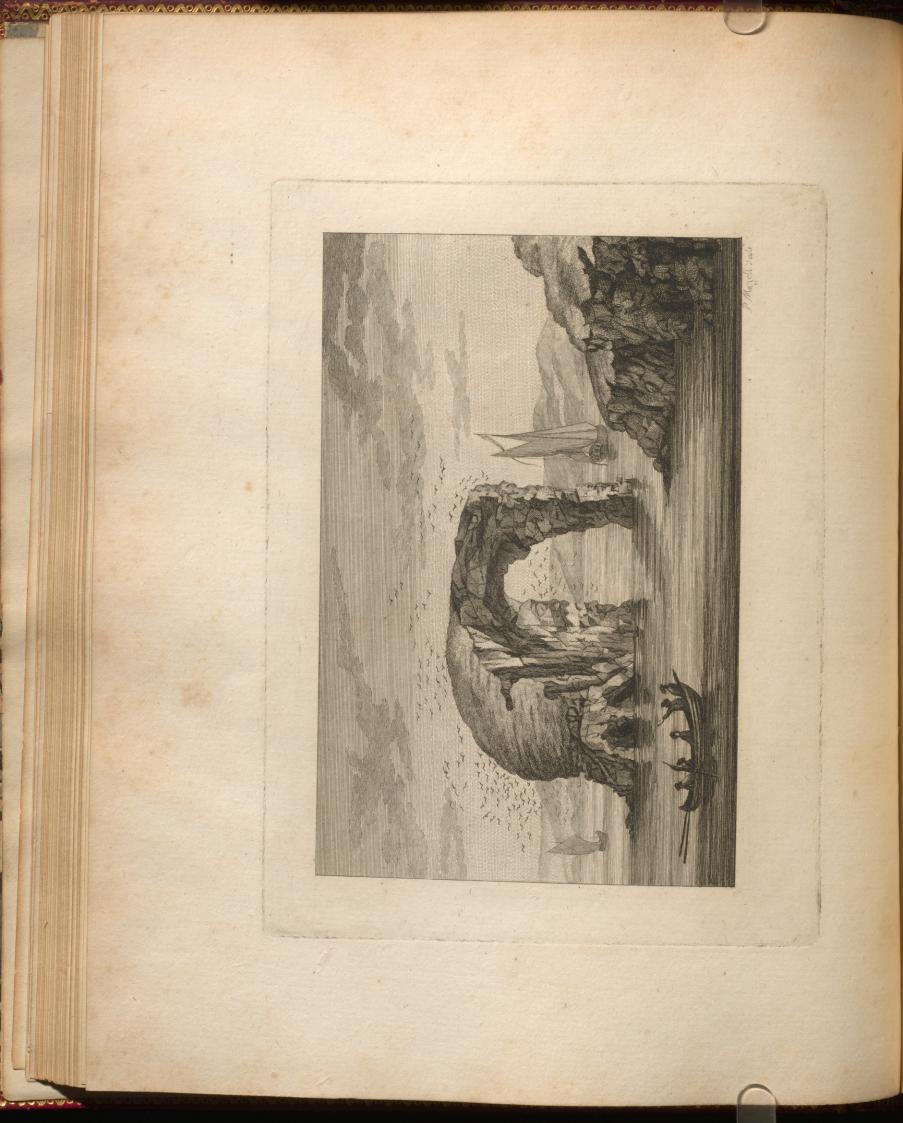
The DOREHOLM.

p. AXVIII.

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and then make the most brilliant appearance. Their motions at these times are most amazingly quick; and they astonish the spectator with the rapid change of their form. They break out in places where none were feen before, fkimming brifkly along the heavens: are fuddenly extinguished, and leave behind an uniform dusky tract. This again is brilliantly illuminated in the same manner, and as suddenly left a dull blank. In certain nights they affume the appearance of vaft columns, on one fide of the deepest yellow, on the other declining away till it becomes undiftinguished from the sky. They have generally a strong tremulous motion from end to end, which continues till the whole vanishes. In a word, we, who only fee the extremities of these northern phænomena, have but a faint idea of their splendor, and their motions. According to the state of the atmosphere they differ in colors. They often put on the color of blood, and make a most dreadful appearance. The rustic sages become prophetic, and terrify the gazing spectators with the dread of war, pestilence, and famine. This superstition was not peculiar to the northern islands; nor are these appearances of recent date. The antients called them Chasmata, and Trabes, and Bolides, according to their forms or colors \*. In old times they were extremely rare, and on that account were the more taken notice of. From the days of Plutarch to those of our fage historian Sir Richard Baker, they were supposed to have been portentous of great events: and timid imagination shaped them into aerial conflicts.

> Fierce fiery warriors fight upon the clouds In ranks and fquadrons and right form of war.

After, I suppose, a very long intermission, they appeared with great brilliancy in England, on March 6th, 1715-16. The philosophers paid a proper attention †. The vulgar considered them as marking the introduction of a foreign race of princes.

The great Gaffendus observed the aurora borealis, in 1621, near to Aix,

<sup>\*</sup> Ariftol. Meteorolog. lib. i. c. 5. Plin. Nat. Hift. lib. ii. c. 26.

<sup>+</sup> See various accounts of them in the Phil. Trans. abr. iv. part ii. 138.

in Provence\*. But they had been long before feen in Greenland, and are well described by the author of the Speculum Regale; of whom we know no more than that he was a person of distinction in the Norwegian court, about the latter end of the thirteenth century, or beginning of the four-teenth, and resided as far north as Helgeland. The novelty is now ceased, and their cause perhaps properly attributed to the greater abundance of electrical matter.

STORMS.

HERRINGS.

The tempests which reign over these islands during winter is astonishing. The cold is moderate; the fogs great and frequent; but the storms agitate the water even to the bottom of these comparatively shallow seas. The fish feek the bottom of the great deeps: and the Herrings, which appear off the Schetlands in amazing columns in June, perform the circuit of our island, and retire beyond the knowlege of man. When the main body of these fish approaches from the north, it alters the very appearance of the ocean. It is divided into columns of five or fix miles in length, and three or four in breadth, and they drive the water before them with a fort of rippling current. Sometimes they fink for a fmall space, then rife again; and in bright weather reflect a variety of splendid colors, like a field of most precious gems. Birds and fish of prey attend and mark their progrefs. The Whales of feveral kinds keep on the outfide, and, deliberately opening their vast mouths, take them in by hundreds. Gannets and Gulls dart down upon them; and the diving tribe aid their perfecution, with the cetaceous fishes †. Mankind joins in the chace; for this useful species gives food to millions, mediately and immediately. Dutch, French, Flemings, Danes, and English, rendezvous in Brassa sound to meet these treasures of the ocean: and return to distribute their booty even to the distant Antilles.

Cod-Fish.

Cod, Ling, and Torsk ‡, furnish cargoes to other adventurers. I wish I could speak with the same satisfaction of this as of the free sishery of the Herring; but in these distant islands, the hand of oppression reigns un-

\* Physicæ, sect, 3. lib. ii. c. 7. † See my Voy. to the Hebrides, and Br. Zool. iii, for the history of the Herring. † Br. Zool. iii. No 89.

controlled.

## IN THE ORKNIES.



controlled. The poor vassals (in defiance of laws still kept in bondage) are compelled to slave, and hazard their lives in the capture, to deliver their sish to their lords for a trisling sum, who sell them to adventurers from different parts at a high price.

Among other scarcer fishes the Opan is found in abundance. It seems a fish of the north as well as the Torsk; the last is not found south of the Orknies; the former extends even to the banks of Newfoundland.

The chimæra monstrosa of Linnæus has been taken off the Schetland islands a few years ago. It is a most singular fish; and is common to these and the Norwegian seas, where the Danes call it Sölvehaen, and Havkat. It is found from the Sound to Drontheim, perhaps Iceland, for the Icelanders have a name for it, Geirnyt. It grows to the length of two feet and a half. The reader will find it well figured in Mr. Ascanius's Icones, tab. xv; in the Asta Nidrosiana, 11, tab. 5, 6; and in Clusius's Exotics, 137. A drawing of that taken on our coasts, by my friend Mr. George Paton, of Edinburgh, was with his usual kindness communicated to me.

A fine specimen of the Asterias caput medusæ, Br. Zool. iv. N° 73, was taken Ott. 1785 off Lunna, one of the Schetland isles, and when fresh was of a most vivid orange color.

The Asterias Equestris of Linnæus, figured in Linckius, tab. xii. fig. 21, was lately discovered by the Reverend Mr. Cordiner, in the sea near Banff. It consisted of five short thick rays. Those, and the upper part of the center, covered with large obtuse papillæ, longest on the sides of the rays. The color deep brown. Its diameter, from the tip of one ray to that of another, nine inches.

The birds of these islands are the same with those of the Orknies, except the Skua, which breeds only in Foula and Unst. Among the sew landbirds which migrate to them in summer, is the Golden-crested Wren. Its shortest slight must be sixty miles, except it should rest midway on Fair Island; a surprising slight for so diminutive a bird!

Multitudes of the inhabitants of each cluster of islands feed, during the feafon, on the eggs of the birds of the cliffs. The method of taking them is fo very hazardous, as to convince one of the extremity to which the

ОРАН.

BIRDS.

FOWLING.

Figured Stones as they appear in a Quarry.



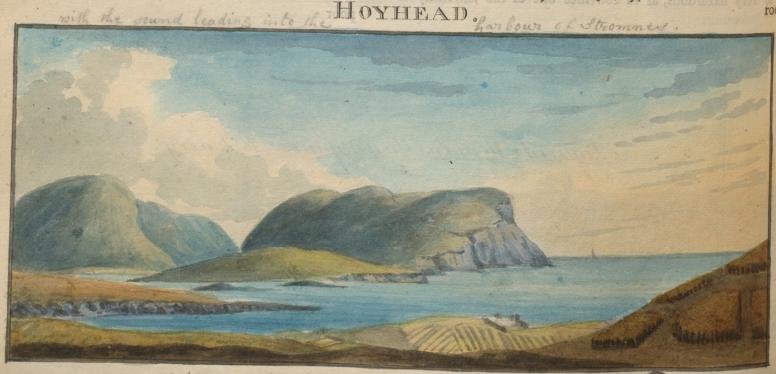
poor people are driven for want of food. Copinsha, Hunda, Hoy, Foula, and Noss-bead, are the most celebrated rocks; and the neighboring natives the most expert climbers and adventurers after the game of the precipice. The height of some is above fifty fathoms; their faces roughened with shelves or ledges, sufficient only for the birds to rest and lay their eggs. To these the dauntless fowlers will ascend, pass intrepidly from one to the other, collect the eggs and birds, and descend with the same indifference. In most places, the attempt is made from above : they are lowered from the flope contiguous to the brink, by a rope, sometimes made of straw, sometimes of the bristles of the hog: they prefer the last, even to ropes of hemp, as it is not liable to be cut by the sharpness of the rocks; the former is apt to untwift. They trust themselves to a single assistant, who lets his companion down, and holds the rope, depending on hi strength alone; which often fails, and the adventurer is fure to be dashed to pieces, or drowned in the subjacent sea. The rope is often shifted from place to place, with the impending weight of the fowler and his booty, The person above receives signals for the purpose, his associate being far out of fight; who, during the operation, by help of a staff, springs from the face of the rocks, to avoid injury from the projecting parts.

In Foula, they will trust to a small stake driven into the ground, or to a small dagger, which the natives usually carry about them; and which they will stick into the ground, and, twisting round it a fishing cord, defcend by that to climbing-places, and, after finishing their business, swarm up by it without fear. Few who make a practice of this come to a natural death. They have a common faying, 'Such a one's Gutcher went over the Sneak; and my father went over the Sneak too.' It is a pity that the old Norwegian law was not here in force. It confidered this kind of death as a species of suicide. The next of kin (in case the body could be seen) was directed to go the same way; if he refused, the corpse was not to be admitted into holy ground \*.

But the most singular species of fowling is on the holm of Noss, a valt

\* Debes, Hift. Ferroe Ifles, 154.

rock



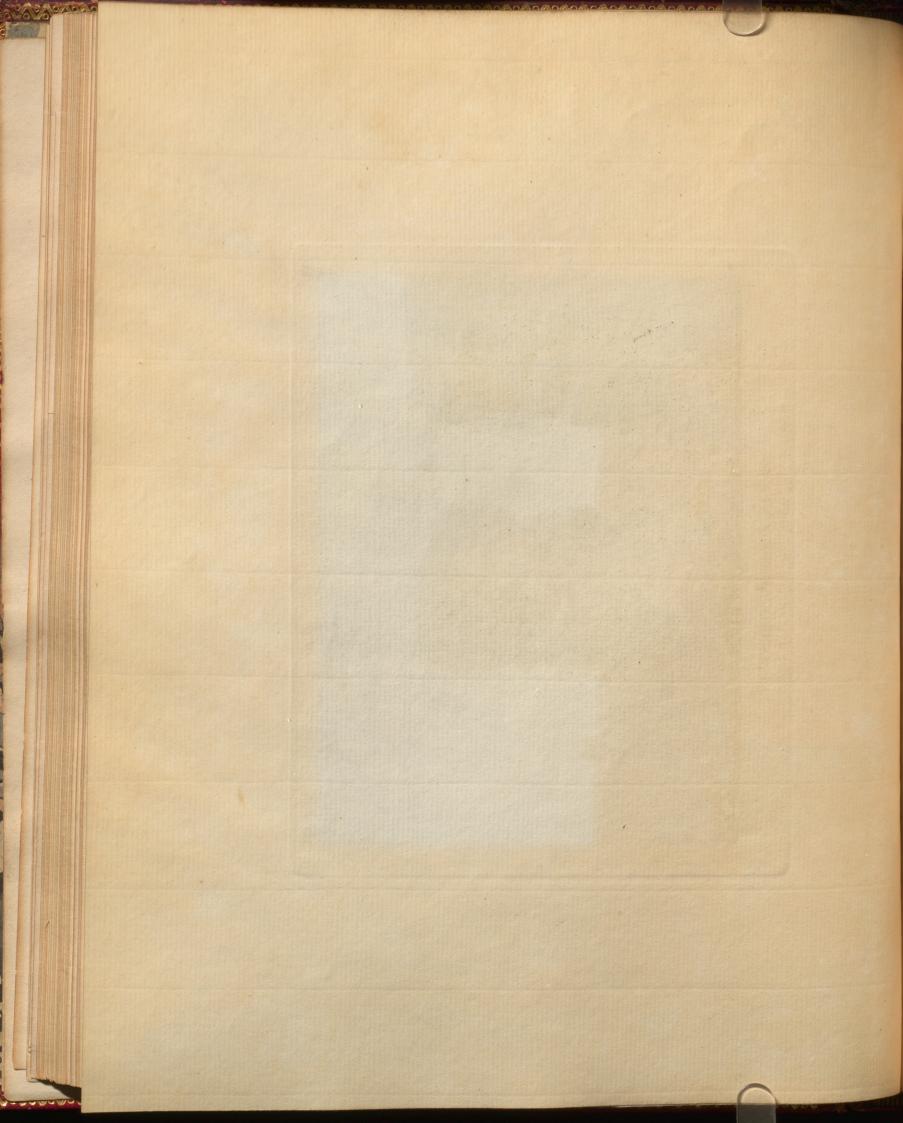
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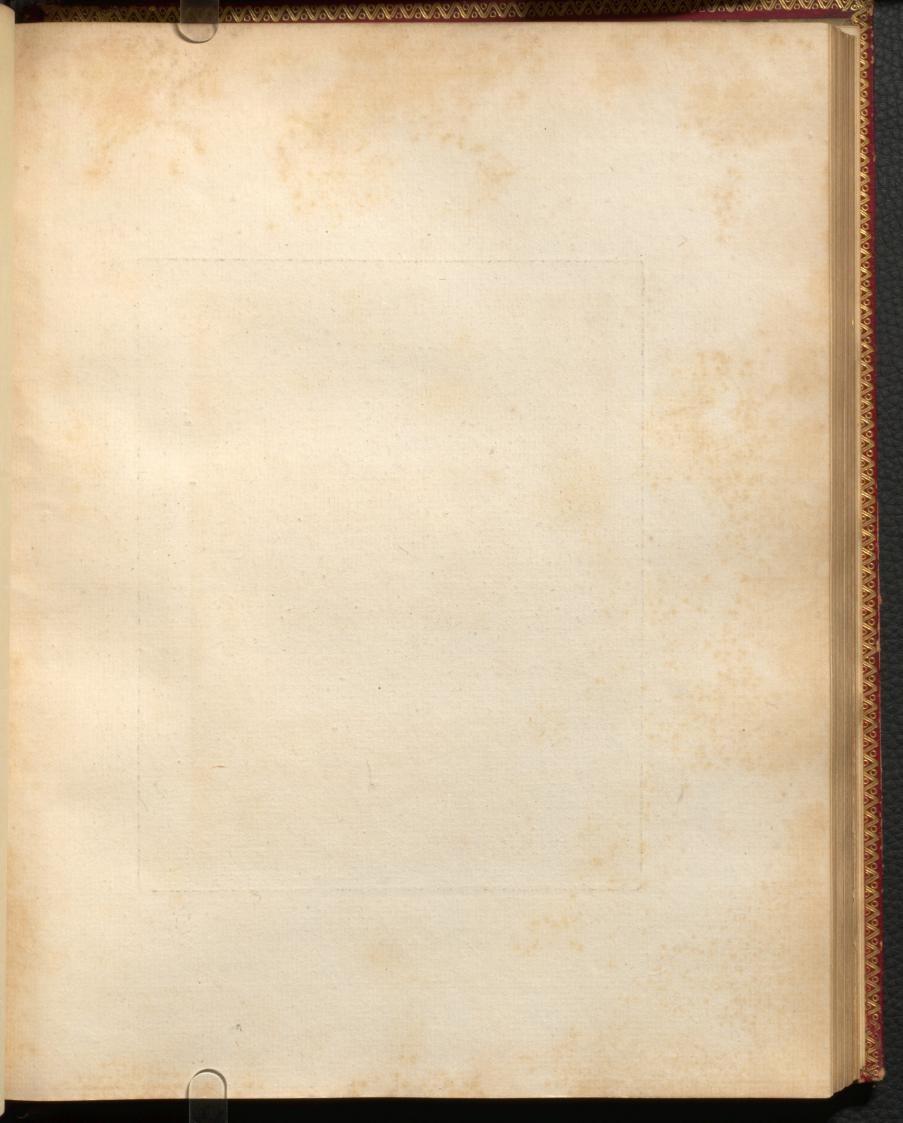
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BIRD CATCHING at ORKNEY.

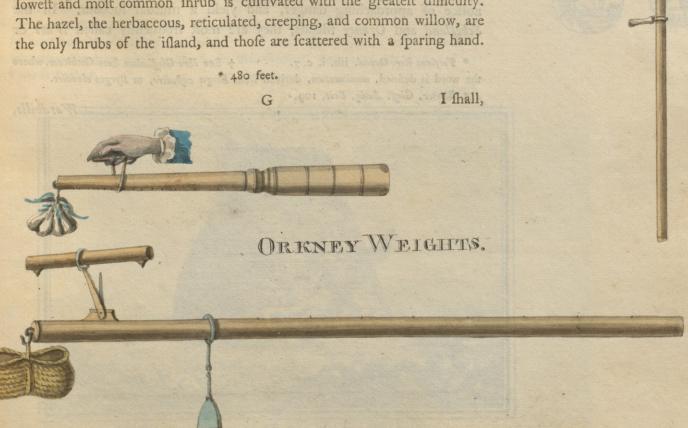
rock fevered from the isle of Noss by some unknown convulsion, and only about fixteen fathoms distant. It is of the same stupendous height as the opposite precipice \*, with a raging sea between; so that the intervening chasm is of matchless horror. Some adventurous climber has reached the rock in a boat, gained the height, and fastened several stakes on the small portion of earth which is to be found on the top: correspondent stakes are placed on the edge of the correspondent cliffs. A rope is fixed to the ftakes on both fides, along which a machine, called a cradle, is contrived to flide; and, by the help of a small parallel cord fastened in like manner, the adventurer wafts himfelf over, and returns with his booty, which is the eggs or young of the BLACK-BACKED GULL and the HERRING GULL.

The number of wild Quadrupeds which have reached the Orkney and Schetland islands are only five; the Otter, Brown Rat, Common Mouse, Fetid Shrew, and Bat. Rabbets are not of British origin, but naturalized in every part. In the fandy isles of Orkney, they are found in myriads, and their skins are a great article of commerce; but the injury they do in fetting the unftable foil in motion, greatly counter-vales the profit.

In many parts of these islands are evident marks of their having been a THESE ISLES ONCE wooded country. In the parish of St. Andrew in the Orknies, in North Maven, and even in Foula in the Schetlands, often large tracts are discovered filled with the remains of large trees, which are usually found after fome violent tempest hath blown away the incumbent strata of fand or gravel with which they have been covered. They are lodged in a moraffy ground, and often ten feet beneath the peat. Some stand in the pofition in which they grew; others lie horizontally, and all the fame way, as if they had either been blown down, or overturned by a partial deluge. Yet at prefent no kind of wood can be made to grow; and even the lowest and most common shrub is cultivated with the greatest difficulty.

QUADRUPEDS.

WOODED.



I shall, in another place, consider the decrease of vegetation in this northern progress.

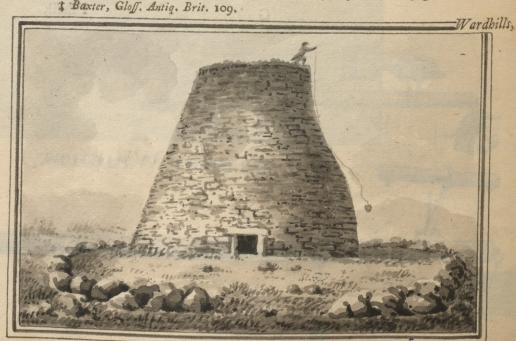
The great quantity of turf which Providence hath bestowed on all these islands, excepting Sanda, is another proof of the abundance of trees and other vegetables, long since lost from the surface. The application of this bumus vegetabilis for the purpose of suel, is said to have been first taught the natives by Einar, a Norwegian, surnamed, from that circumstance, Torf-einar, Einar de Cospite\*. Had he lived in Greece, he could not have escaped deisication for so useful a discovery.

ANTIQUITIES.

Before I quit the last of British isles, I shall, as supplemental to the antiquities mentioned in my Tours in Scotland, give a brief account of others found in these groups.

The Orknies, the Schetlands, Cathness, Sutherland, and Ross-shire, with the Hebrides, were, for centuries, possessed by the Norwegians; and, in many instances, they adopted their customs. Of the antient monuments still remaining, several are common to Scandinavia and the old inhabitants of Britain: others feem peculiar to their northern conquerors. Among those are the circular buildings, known by the names of Pittill houses, Burghs, and Duns: the first are of more modern date, and to be exploded, as they never were the work of the Picts; the second are affuredly right, and point out the founders, who at the same time bestowed on them their natal name of Borg, a defence or castle +, a Sueo-Gothic word; and the Highlanders univerfally apply to these places the Celtic name Dun, fignifying a hill defended by a tower ‡. This also furnishes the proof of their use, was there no other to be discovered. They are confined to the counties once subject to the crown of Norway. With few exceptions, they are built within fight of the fea, and one or more within fight of the other; fo that on a fignal by fire, by flag, or by trumpet, they could give notice of approaching danger, and yield a mutual fuccour. In the Schetland and Orkney islands, they are most frequently called Wart or

\* Torfæus Rer. Orcad. lib. i. c. 7. + See Ibre Glossarium Sueo-Gothicum, where the word is defined, munimentum, derived from Berga custodire, or Byrgia claudire.



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Sues-Gathian

Byrgia clauter

Wardbills, which shews that they were garrifoned. They had their wardmadher \*, or watchman, a fort of centinel, who stood on the top, and challenged all who came in fight. The gackman + was an officer of the same kind, who not only was on the watch against surprize; but was to give notice if he saw any ships in diffress. He was allowed a large horn of generous liquor, which he had always by him, to keep up his spirits t. Along the Orkney and Schetland shores, they almost form a chain; and by that means not only kept the natives in subjection, but were situated commodiously for covering the landing of their countrymen, who were perpetually roving on piratical expeditions. These towers were even made use of as state-prisons; for we learn from Torfæus, that after Sueno had furprized Paul, count of Cathnels, he carried him into Sutherland, and confined him there in a Norwegian tower §. So much has been faid on this subject by the Reverend Mr. Cordiner and myself, that I shall only refer to the pages, after faying, that out of our kingdom, no buildings fimilar to these are to be found, except in Scandinavia. On the mountain Swalberg | in Norway is one; the Stir-bifkop ¶, at Upfal in Sweden, is another; and Umfeborg, in the fame kingdom, is a third \*\*.

These towers vary in their inner structure; but externally are univerfally the same; yet some have an addition of strength on the outside. The burgh of Culswick in Schetland, notwithstanding it is built on the top of a hill, is furrounded with a dry ditch thirteen feet broad; that of Snaburgh in Unst, has both a wet and a dry ditch; the first cut, with great labor, through the live rock. The burgh of Mousa is surrounded by a Or Mousa and wall, now reduced to a heap of stones, and the inside is cylindrical, not taper, as usual with others. The burgh of Hogseter, upon an isle in a loch of the same name, has also its addition of a wall; a peculiarity in a causeway, to join it to the main land, and a singular internal structure.

\* Ihre Gloff. Sueo-Goth. 1085. + Crit. Diff. by John Macpherson, D. D. 325. ‡ Torfæus Rer. Orcad. 8. § Baxter, Gloff. Antiq. Brit. 109. || Information by letter from Mr. Suhm of Copenhagen. \*\* The fame, ¶ Dalbberg, tab. 64. tab. 300 .- For more ample accounts, fee Mr. Cordiner's Letters, 73, 105, 118, and my Tours in Scotland.

Heating Stone at Fundwich Numbers

HOGSETER.

Numbers of little burghs, with fingle cells, are fcattered about these islands, in the neighborhood of the greater; and which probably were built by the poorer fort of people, in order to enjoy their protection. A multitude of places in these islands have the addition of burgh to their names, notwithflanding there is not a veftige of a tower near them; the materials having long fince been carried away, and applied to various uses. One was, by way of pre-eminence, called Coning Sourgh, or the burgh of the king. I lament its loss the more, as it might have proved similar to its namefake in Yorksbire, and furnished additional materials to my worthy friend, Edward King, Esq; for his most elaborate history of English castles \*. The plates, with explanatory accounts, shall supply what farther can elucidate these curious antiquities.

After the expulsion of the Norwegians, the coasts of Scotland, which they possessed, were still protected by castles; many of which, such as Oldwick, exhibit very small improvements on the model left by the antient Scandinavian architects: a few deviated from the original manner, were fquare, had great thickness of wall, furnished with cells like those in the round Borve Castle. towers or burghs. Borve castle, in Cathness, is a little more advanced. This was the refidence of Thorkel, a famous freebooter in the tenth century. It is a small square building, on a rock projecting into the sea, adjoined to the main land by an isthmus not ten feet wide; and beneath the castle is a magnificent passage for boats, which pierces the rock from side to fide, and is covered by a matchless natural arch.

I cannot but revert to the former fubject, to mention the Snaburgh in Tetlor, one of the most remote of the Schetland isles. It is in the form of ROMAN CAMP? a Roman camp; and when entire, had in the middle a rectangular area furrounded by a wall, and that by an earthen rampart of the fame figure, at some distance from it. Two sides of the walled area have the additional defence of another rampart of earth; which commences on the infide of one of the narrower fides, and, preserving the same distance from

> \* See his curious account of Coning shorough castle, which he justly compares to the Scottish Duns; and judiciously ascribes to it a very early date. Archaelegia, vi. 234. tab. xxiii.

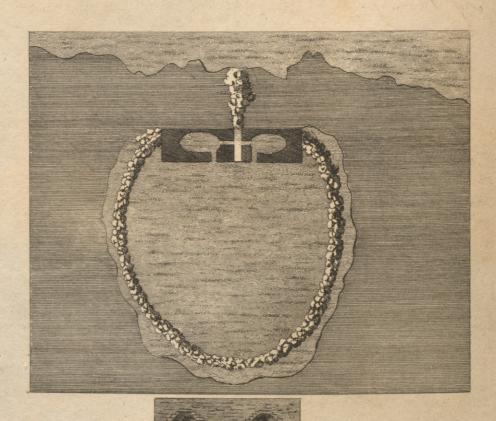
Circles of large stones at Stennis from J. Leitch.



ttered above ich probable ieir protection of burgle ver near the ied to vario or the barja ials to my ory of Engli cotland, which n, fuch as Oh the antienth anner, werely those in the le more adva ig into the fa ; and benea the rock from on the Sasky t is in their a rectangula f the famel mences on the mpares to tall vi. 234. tal ti

Antiquities in the ORK

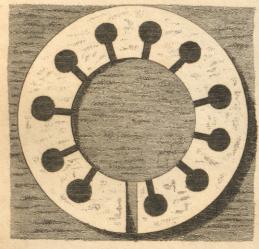




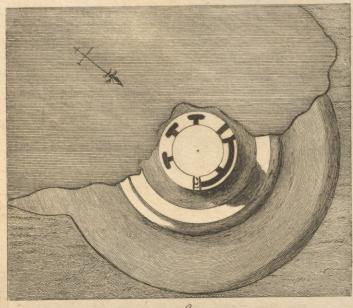
Burgh of Hogseter.

P. XXXIII.

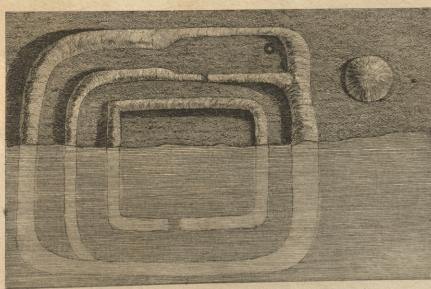
NEY & SHETLAND Isles.



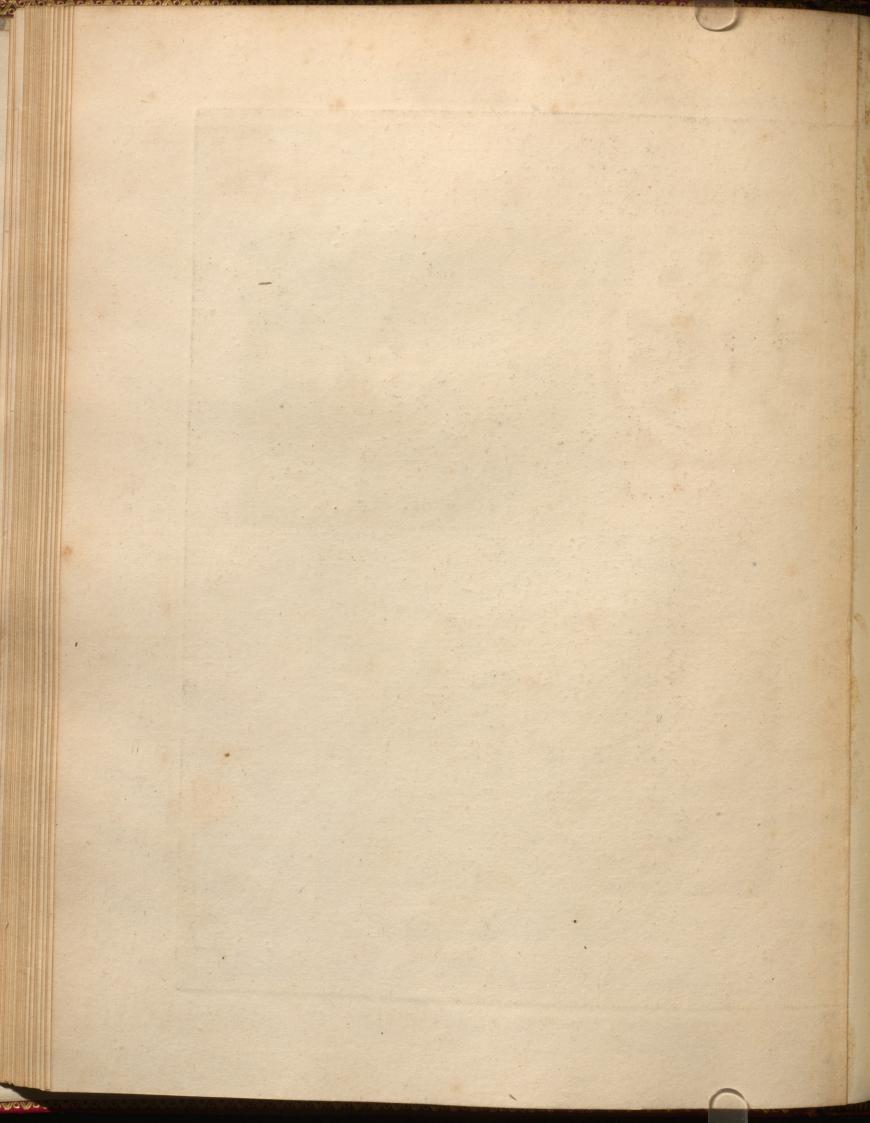
Burgh of Burra-firth.

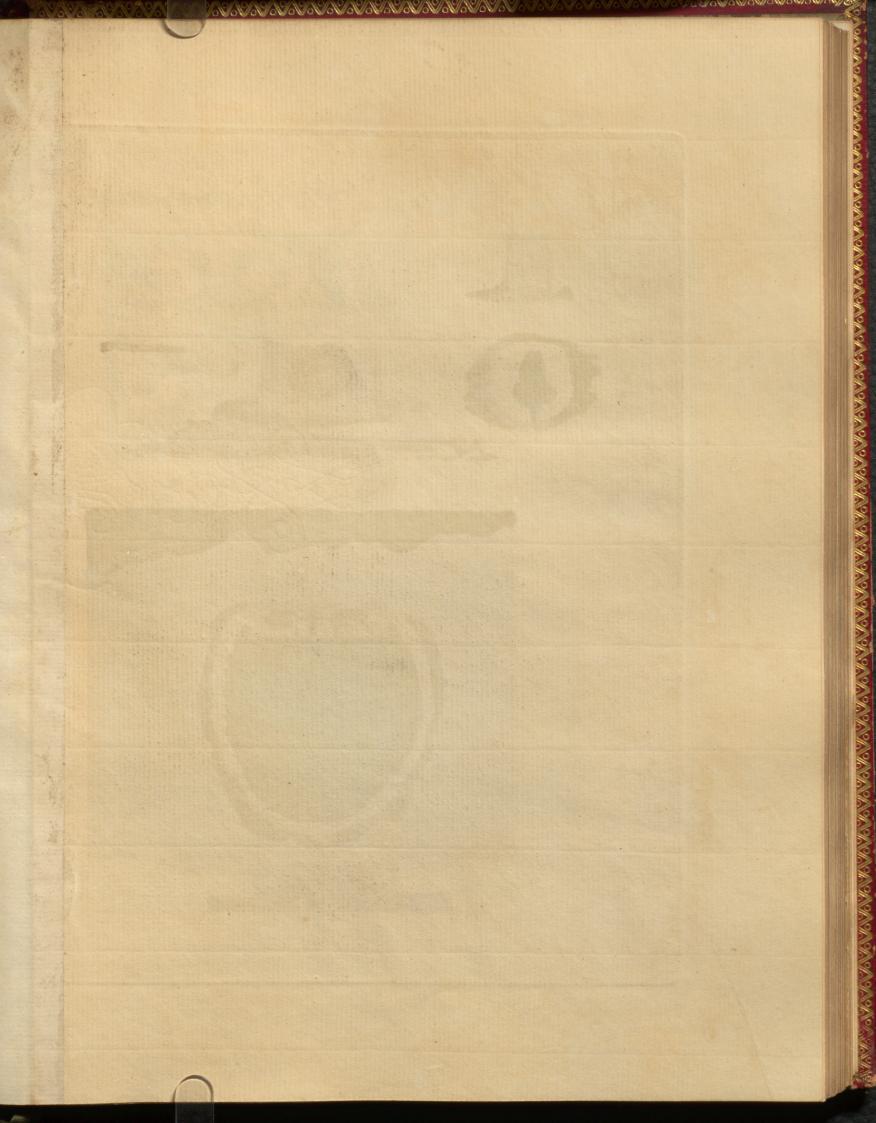


Snaburgh in Unst.



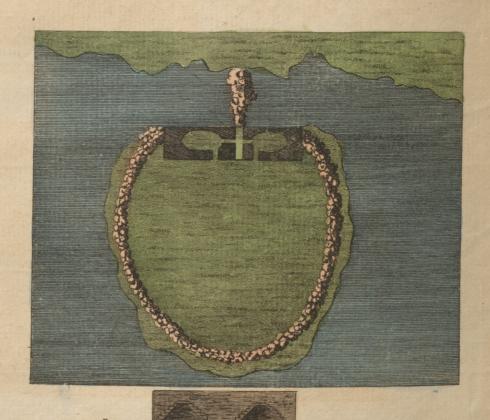
Roman Camp in Fettar.





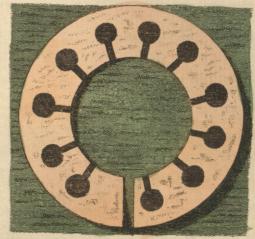
Antiquities in the



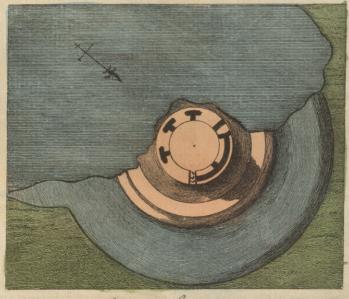


Burgh of Hogseter.

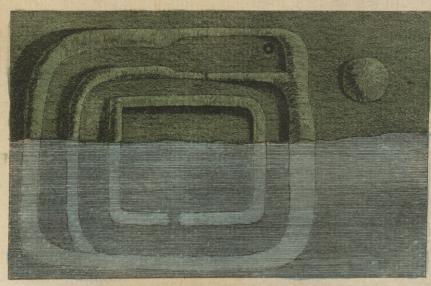
# ORKNEY & SHETLAND Isles.



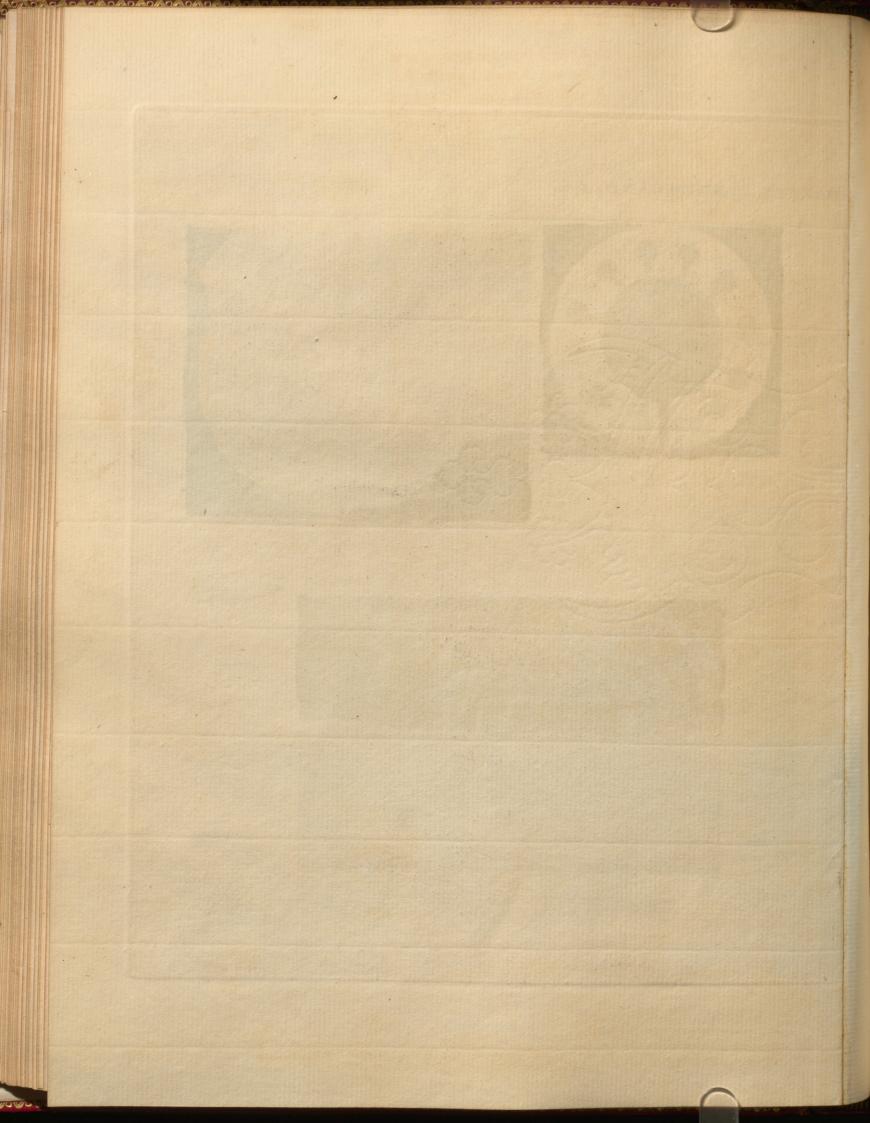
Burgh of Burra-firth.



Snaburgh in Unst.



Roman Camp in Fetlar.



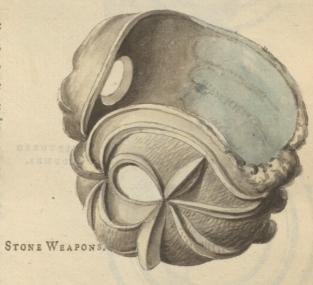
the leffer area as the two other fides of the outward fence do, terminates at the latter, near an artificial well. That this was Roman, I greatly fufpect. The care for water was a peculiar object with that wife nation; but neglected by barbarians. This is inclosed within the rampart, and at a small distance on the outside, had the protection of a mount, which once probably had its castellet, garrisoned for the further fecurity \*. The regular portæ are wanting; in other respects it resembles a Roman camp. The sea, over which it impends, has destroyed one half: the entire part is given in the plate, and the rest supplied with dotted lines.

I know but of two periods in which the Romans might have visited these islands: one at the time when the fleet of Agricola subdued the Orknies; the other, when the fleet of Honorius defeated the Saxons in the circumjacent seas. A copper medal of Vespasian, with Judaa devicta + on the reverse, was found on the south side of Main-land, probably lost there by the first invaders, who might venerate Vespasian, under whom many of them had ferved, and who might naturally carry with them fuch honorable memorials of his reign. The only antiquities found near this place, were fix pieces of brass, cast into a form the nearest resembling fetters. They were wrapped in a piece of raw hide; but we cannot pretend to fay that they belonged to the occupiers of the camp.

Flint heads of arrows, flint axes, fwords made of the bones of a whale, Stone Weapo stones, beads, and antiquities, must be referred to the earliest inhabitants, at a period in which these kingdoms were on a level with the natives of new-discovered islands in the South Sea. Druidical circles of stones, the temples of primæval religion of our island, are not uncommon. The finest and most entire are those at Stennis, in one of the Orkney isles. The diameter of the circle is about a hundred and ten yards. The highest ftone fourteen feet. The whole is fingularly furrounded with a broad and deep ditch, probably to keep at a distance the unhallowed vulgar.

At the same place is a noble semicircle, confisting of four vast stones entire, and one broken. The highest are twenty feet high above ground.

BRAZEN FETTER



CIRCLES.

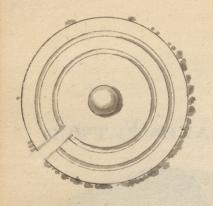
SEMICIRCLES.

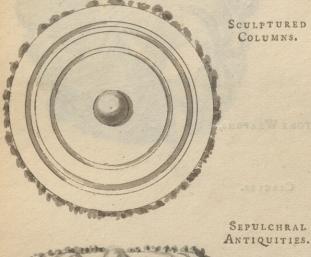
Behind

\* Vegetius de re Milit. lib. iv. c. 10.



to Stennis from J. Leiteh.





CIRCULAR.

Behind them is a mound of earth, conformable to their polition. If there never was a number of stones to complete a circle, this antiquity must have been one of the kind which the learned Doctor Borlase calls a theatre, and fupposes was defigned for the exhibition of dramatical performances\*. I fuspect them to have been either for the purposes of religion, or judicial transactions; for the age was probably not sufficiently refined for the for-PLAIN COLUMNS. mer amusements. Upright stones, either memorials of the dead, or victories obtained on the spot, are very numerous. The most remarkable is the stone of Sator, in the isle of Eda. It is a flag, fifteen feet high, five and a half broad, and only nine inches thick. Its story is quite unknown; but it probably refts over a hero of that name. Notwithstanding the long refidence of the Norwegians in these islands, I find only one stone with a Runic inscription, which runs along the sides. The rest of the stone is plain, and destitute of the sculptures so frequent on those found in Scandinavia.

In the wall of the church at Sandness, is a stone with three circles, a femicircle, and a square figure, engraven on it. This is the only one which bears any refemblance to the elegant carved columns at Meigle and Glames, and which extend, after a very long interval, as far as the churchyard of Far, on the extreme northern coast of Cathness. Several of these have been before attended to. I can only remark, that they are extremely local, and were, by their fimilarity, only the work of a short period. We imagine that the first, about which we can form any conjecture, was erected in 994, on the defeat of Camus, the Dane: the last in 1034, on the murder of Malcolm the Second.

In the isle of Unst are two singular circles, near each other. The largest is fifty feet in diameter, to the outmost ring; for it consists of three, concentrical; the outmost is formed of small stones, the two inner of earth; through all of which is a fingle narrow entrance to a tumulus which rifes in the centre. The other circle is only twenty-two feet in diameter, and has only two rings, formed of earth: in the centre is a barrow, the fides of

· Sator's Stone's Calf Sound in Eda.





which are fenced with stones. No marks of their having been places of interment have been found, yet most probably that was their use.

The links or fands of Skail, in Sandwich, one of the Orknies, abound in round barrows. Some are formed of earth alone, others of stone covered with earth. In the former was found a coffin, made of fix flat stones. They are too short to receive a body at full length: the skeletons found in them lie with the knees preffed to the breaft, and the legs doubled along the thighs. A bag, made of rushes, has been found at the feet of some of these skeletons, containing the bones, most probably, of another of the family. In one were to be feen multitudes of fmall beetles. Whether they were placed there by defign, or lodged there by accident, I will not determine; but, as I have discovered similar infects in the bag which inclosed the facred Ibis, we may suppose that the Egyptians, and the nation to whom thefe tumuli did belong, might have had the same superstition respecting them. On some of the corpses interred in this island, the mode of burning was observed. The ashes, deposited in an urn which was covered on the top with a flat stone, have been found in the cell of one of the barrows. This coffin or cell was placed on the ground, then covered with a heap of stones, and that again cased with earth and fods. Both barrow and contents evince them to be of a different age from the former. These tumuli were in the nature of family vaults: in them have been found two tiers of coffins \*. It is probable, that on the death of any one of the family, the tumulus was opened, and the body interred near its kindred bones.

The violence of the winds have, by blowing away the fands in a certain part of Westra, one of the Schetlands, discovered an extensive burying-place, once covered with the thickness of twenty feet. This seems to have belonged to different nations. One is marked by the tumuli consisting of stones and rubbish; some rounded, others flat at top like truncated cones. Near them are multitudes of graves, which are discoverable only by one, two, three, sour, and sometimes even more short upright

\* See Mr. Low's account, and plate, Archaologia, iii. 276. tab. xiii.

GRAVES in WESTRA. Rones,



BARROWS.



Stone Beads

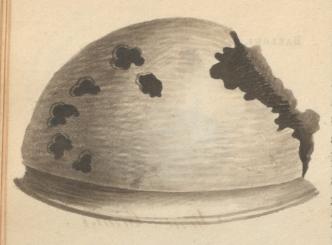


GRAVES OF WESTRA.





1.2.3 found in the Graves in Westra





ftones, fet in the level fand. The corpse was interred a few feet deep, and covered with a layer of fine clay, to keep the fand from touching it. Not only human bones, but those of oxen, horses, dogs, and sheep, have been found in these graves. Besides, were several forts of warlike instruments, battle-axes, two-handed fwords, broad-swords, brazen daggers and scull-caps, and swords made of the bones of the whale: knives and combs: beads, brotches, and chains of ornament: a metal spoon. and a neat glass cup greatly corroded: small flat circular pieces of marble: stones shaped like whetstones, and spherical stones perforated, such as were in former use in Scotland for turning of spindles: but the most fingular thing was a thigh-bone closely incircled by a ring of gold. The tumuli feem to have been the places of fepulture of the inhabitants of the isles: the graves, those of some foreign nation who had landed here, had a conflict, and proved victorious. I found my conjecture on the arms and other matters found in them. The brazen were Norwegian\*, the iron belonging to the natives; but the weapons of conquerors and conquered were, with ceremonies refembling those at the funeral of Pallas, flung into the graves of the victorious party.

Hinc alii spolia occisis direpta Latinis
Conjiciunt igni, galeas ensesque decoros,
Frenaque, serventesque rotas; pars munera nota,
Ipsorum clypeos; et non selicia tela:
Multa boum circa mactantur corpora morti.

The antiquities of this class found in Scandinavia are very numerous, and of a magnitude which evince the extreme population of the country. I discover only three kinds. The first may be exemplified in the vast rounded earthen tumulus in Smaland, with a rude monumental upright stone at top; and near it a spherical stone, beautifully carved, slung up in honor of Ingo King of Sweden, in the latter end of the ninth century; the others in honor of Humblus, and Laudur brother to King Angantyr; the

\* Wormii Mon. Dan. 50. Dalhberg Suecia Antiqua, et Hodierna, tab. 314.

† Dahlberg Suecia Antiqua, tab. 322.



InScandinavia.

tast furrounded at its base with a circle of rude stones \*. The Rambora Rolle is a mount of earth, with three upright pillars, placed fo as to form a triangular space +. Other tumuli consist entirely of vast heaps of stones. Several of the fepulchral memorials are formed of stones disposed in a circular form: fome of low stones, like that of the Danish King Harald Hyldeland, placed round the edge of the flat area of a low mount. He was flain in battle by Ringo King of Sweden I, who paid him all funeral honors, burnt his body with great pomp, and placed around his tumulus the numerous bodies of his faithful followers who were slain around their prince; and their places of rest are marked by multitudes of small earthen barrows, with a fingle stone at the top of each. On the regal mount is a flat stone, with five hollows in it, basons to receive the blood of the victims |. Others consist of small stones with meini-berion, as the Welfb flyle them, lofty rude pillars, intermixed. In some the lesser stones depart from the circular form, are oval or oblong: their edges are often contiguous, and those parts are often marked with a lofty pillar §. Two pillars are fometimes found, with an enormous stone set from top to top, so as to form the resemblance of a gateway . Columns of great height are also found, surrounded at their base with two circles of small stones \*\*. Finally, the stones are disposed so as to form wedges, squares, long rows, as well as circles. The first denoted that armies of foot and horse had prevaled: the second, troops of warriors: the third, duels of champions: and the last, the burials of families ††. Multitudes of single obeliscs are fcattered over the country: fome quite plain; others inscribed with Runic characters, memorial of the dead, intermixed with well-fancied ornaments 11.

I must here mention the famous tomb found at Kivike, a parish of

\* Dahlberg Suecia Antiqua, tab. 315. † The same, 323. † Saxo Gramm. 147. || Dahlberg, tab. 315. § The same, and tab. 281. ¶ Olaus Magnus. \*\* Wormii Mon. Dan. p. 63.

†† I do not well understand some of these distinctions; but give them from Olaus Mugnus, lib. i. c. 18. Most of them are exemplished at Finsta in Sweden. See Dahlberg, tab. 104, and Perinskield Monum. Sueo-Goth. p. 216.

H

11 Wormii Monum. Dan. 64, & passim.

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Schonen





#### INVOCATION. RUNIC

Schonen in Sweden, in the centre of a vast tumulus of round stones; its length was about seven Swedish yards, its breadth, two. It was oblong and confifted of several flat stones, the inside of which was carved with figures of men and animals, and the weapons of the age, axes and spears heads. A figure was placed in a triumphal car: cornets feemed founding: captives with their hands bound behind, guarded by armed men; and figures, supposed to be female, formed part of the conquered people, It is supposed that the Roman fleet made an accidental descent here, had a fuccessful skirmish with the natives, might have lost their leader, and lest this mark of their victory amidst the barbarous conquered. The tomb had been broken open by the country people, and whatfoever it might have contained was stolen away and lost \*.

In many of the tumuli are found the weapons and other matters which had been deposited with the burnt bones of the deceased. In those of the earliest ages are the stone weapons, such as axes and spears heads made of flint. In others have been met with a fmall lamp, a key, and fwords of brass of the same form with some of the Roman swords †. A superstition attending the swords was singular: those of highest temper were supposed to have been made by Duergi, dwarfs or fairies, and were thought to have been irrefiftible. The reader will not be displeased with the elegant verfion t of a Runic poem, describing the incantations of a fair heroine, to obtain the magical fword out of the tomb of her deceased father.

The Runic INVOCATION of HERVOR, the Daughter of ANGANTYR, Who demands, at her Father's Tomb, a certain Sword, called Tirfing, which was buried with him.

HERVOR.

Awake, Agantyr! To thy tomb, FLINT AX ... NORWAY. Break thy drowfy fetters, break! With sleep-expelling charms, I come. "Tis Hervor calls-Awake! awake!

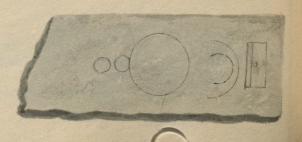
Tirfing, made by fairy hands, Herwor from thy tomb demands. Herwardur, Hiorwardur, hear! List, oh list, my father dear!

\* See M. Forsenius's curious differtation on this antiquity; printed at Lund. 1740. + Dalherg, tab. 314. I By my friend, the Reverend Mr. Williams of Vron.

Each

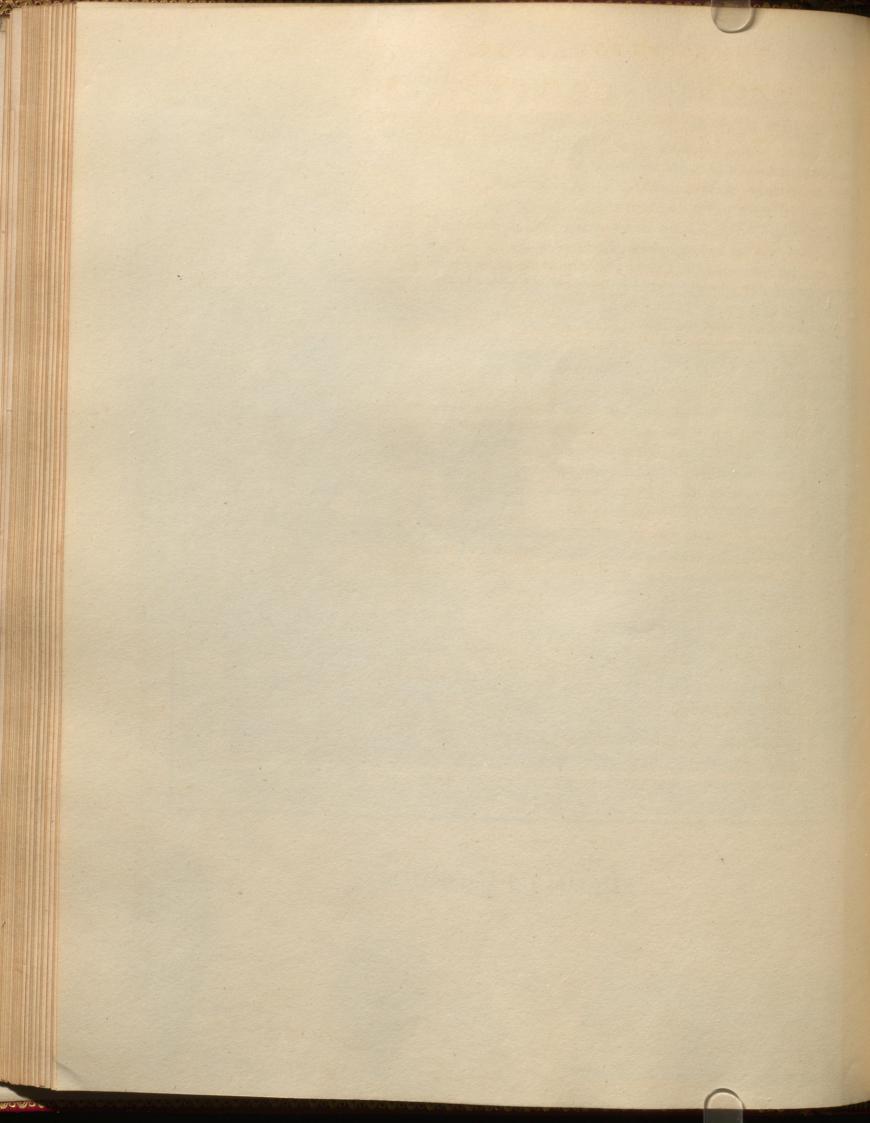








TUMULUS URBONIS.



Each from his filent tomb I call: Ghosts of the dead, awaken all! With helmet, shield, and coat of mail, With fword and spear, I bid ye hail! Where twifted roots of oak abound, And undermine the hollow ground, Each from his narrow cell I call! Ghosts of the dead, awaken all! In what darksome cavern deep, Do the fons of Angrym sleep? Dust and ashes tho' ye be, Sons of Angrym, answer me. List'ning in your clay-cold beds, Sons of Eyvor, lift your heads. Rife, Hiorwardur, rife and speak; Herwardur, thy long filence break. Dust and ashes tho' ye be, One and all, oh answer me. Never, oh never may ye rest; But rot and putrefy unbless'd, If ye refuse the magic blade, And belt, by fairy fingers made!

#### ANGANTYR.

Cease, oh daughter, cease to call me;
Didst thou know what will befall thee,
Thou hadst never hither sped,
With Runic spells to wake the dead:
Thou, that in evil hour art come
To brave the terrors of the tomb.
Nor friend, nor weeping father, gave
Angantyr's reliques to the grave;
And Tirsing, that all-conquering sword,
No longer calls Angantyr lord.
A living warrior wears it now———

#### HERVOR.

Tis false, Angantyr; only thou. So may great Odin ever keep In peace the turf where thou dost fleep; As Tirfing still beside thee lies, Th' attendant of thy obsequies! My just inheritance I claim; Conjure thee by a daughter's name, Thy only child!

#### ANGANTYR.

Too well I knew
Thou wouldst demand what thou shalt rue.
By Tirfing's fatal point shall die
The bravest of thy progeny.
A warlike son shall Hervor bear,
Hervor's pride, and Tirfing's heir;
Already, daughter, I foresee
Heidrek the hero's name will be:
To him, the young, the bold, the strong,
Tirfing hereafter will belong.

#### HERVOR.

Ne'er shall my inchantments cease, Nor you, ye spirits, rest in peace, Until ye grant what I demand, And Tirsing glitters in my hand.

#### ANGANTYR.

Oh Virgin, more than woman bold!

Of warlike mien, and manly mould!

What has induc'd thy feet to tread

The gloomy mansions of the dead,

At this lone hour, devoid of fear,

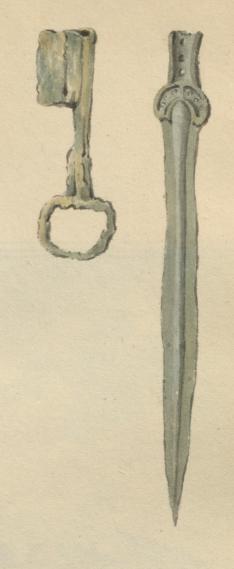
With sword, and shield, and magic spear?

#### HERVOR.

The cause thou know'st, why to thy tomb
I've wander'd thro' the midnight gloom:
Yield then the Fairies work divine;
Thou art no father else of mine;
But goblin damn'd.

#### ANGANTYR.

Then hear me, Maid,
That art not ev'n of death afraid!
H 2 Hialmar's









Hialmar's bane thou shalt command; The fatal sword is in my hand: But see the slames that round it rise! Dost thou the surious sire despise?

#### HERVOR.

Yes; I dare feize, amidst the fire, The object of my foul's defire; Nor do these eyes behold with dread, The same that plays around the dead.

A N G A N T Y R.

Rash Maid! will nothing then control
The purpose of thy daring soul?
But hold—ere thou shouldst fall a prey
To these sierce slames that round it play,
The sword from out the tomb I'll bring;
Go, and the song of triumph sing.

#### HERVOR.

Offspring of kings! I know thee now, And thus before thy presence bow; Father, Hero, Prince, and Friend! To thee my grateful knees I bend. Not half so happy had I been, Tho' Scandinavia hail'd me queen.

ANGANTYR.

How art thou to thy int'rest blind,

Weak woman, tho' of dauntless mind!

Tirsing, the object of thy joy,

Thy suture offspring shall destroy.

My feamen call: I must away:
Adieu, O King I cannot stay.
Fate, do thy worst! in times to come
Be what it may, my children's doom!

A NG ANTYR.

Take then, and keep *Hialmar*'s bane,
Dy'd in the blood of heroes flain.

Long shall the fatal pledge be thine,
Hervor, if truly I divine;
The fell, devouring, poison'd blade,
For death and for destruction made.

#### HERVOR.

With joy the two-edg'd fword I take, Nor reck the havock it will make; Possessing which, I little rue Whate'er my frattic sons may do.

ANGANTYR.

Daughter, farewell! as thou dost live,
To thee the death of twelve I give:
To thee, O maid of warlike mind,
What Angrym's sens have left behind.

HERVOR.

Angantyr, rest in peace! and all Ye ghosts, who have obey'd my call; Rest in your mould'ring vaults below! While from this house of death I go, Where, bursting from the vap'rous ground, Meteors shoot, and blaze around.

I shall just mention, that the antient Scandinavian had also their Cromlebs\*. I can trace but one instance, and that on the top of a tumulus in Zeland; which, with two other barrows, is included in a square of stones.

Circles, for the purpose of religious rites, were not wanting here. The Ettestupa, or circle of losty rude columns in West Gotbland, was celebrated

\* Wormii Mon. Dan. p. 8.



FEROE ISLANDS.



FEROE ISLANDS.

for the facrifices of the heathens\*; and the great stones at Finstad, disposed in form of a cell, and called St. Birgitta's Oratory†, was no other than a temple of worship, analogous, probably, to that of the Druids.

The next step is to

## THE FEROE ISLANDS,

A group about two hundred and ten miles to the north-west of the northern Schetland, between lat. 61, 15. and 62, 30. There are seventeen which are habitable, each of which is a lofty mountain arifing out of the waves, divided from the others by deep and rapid currents. Some of them are deeply indented with secure harbours; providence seeming to have favored mankind with the fafest retreats in the most boisterous seas. All are very steep, and most of them faced with most tremendous precipices. These islands have been evidently vulcanic, and produce many fubftances in common with Iceland, fuch as very beautiful zeolites both crystallized and sheafy, most elegant calcedonies tuberose and mixed with lava and tufa; also stratified calcedonies, disposed in white semipellucid and yellowish opake broad layers. They are often found mixed with lava, and of later creation, and supposed by M. Bergman to have been deposited by the Geysers, or heated waters of the vulcanoes. The furface of the mountains confifts of a shallow foil of remarkable fertility; for barley, the only corn fown here, yields above twenty for one; and the grass affords abundant pasturage for sheep. The exports are falted mutton and tallow, goofe quils, feathers, and Eider down; and, by the industry of the inhabitants, knit woollen waistcoats, caps, and stockings. No trees beyond the size of juniper, or stunted willows, will grow here: nor are any wild quadrupeds to be met with, except rats and mice, originally escaped from the shipping.

The lift of land birds is very small:—The CINEREOUS EAGLE; the LANNER; the Sparrow Hawk ‡; a species of Owl; the Raven; and Hooded Crow, are the pernicious species. Ravens were so destructive to the Lambs and Sheep, that in old times every boatman was obliged to bring into the sessions-house, on St. Olaus's day, the beak of one of those

FEROE ISLES.

LAND BIRDS.

<sup>\*</sup> Dalbberg, tab. 280. † The fame, 105.

These on the authority of Mr. Debes, who wrote the history of these isles in 1670.

birds, or pay one skin, which was called the Raven-fine, in case of neglect. The remaining land fowl are WILD PIGEONS and STARES, WHITE WAGTAILS, WRENS, and sometimes the Swallow. The Snow Bunting only rests here in spring, on its passage northward. The Heron is sometimes met with. The Spoon-Bill is Common\*. The Sea Pie, Water Rail, and Lapwing, are seen here. The birds of the rocks, such as Puffins, Razor Bills, and Little Auks, Foolish and Black Guillemots, swarm here; and the Geyir-fugl, or Great Auk, at certain periods visits these islands. The last, by reason of its short wing incapable of slight, nestles at the foot of the cliss. The Skua, Arctic, Blackbacked, and Herring Gulls, Fulmars, Manks, Stormy Petrels, Imber and Northern Divers, Wild Swans and Geese, (the Swans only vernal passengers towards the north) Eider Ducks, Havelda or Long-tailed Ducks, Corvorants, and the Sula Gannet, form the sum of the palmated fowl of these inhospitable spots.

FOWLING.

FROM ABOVE.

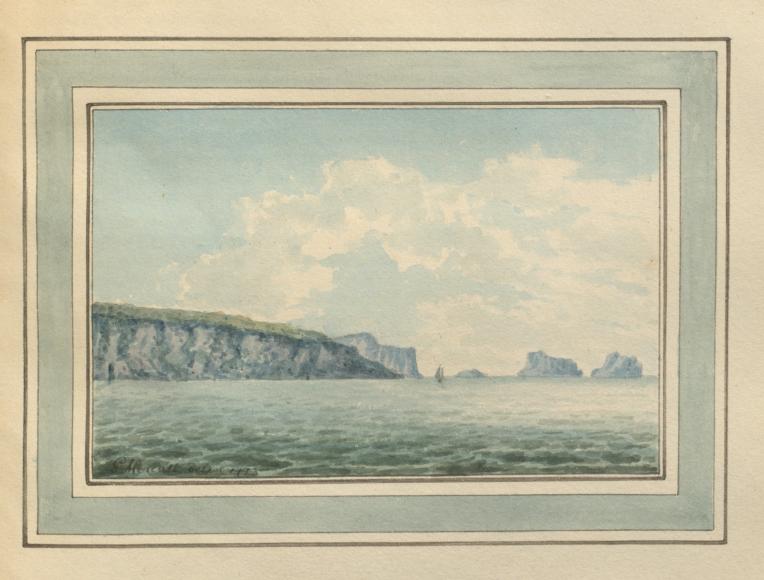
The manner of fowling is fo very strange and hazardous that the defcription should by no means be omitted. Necessity compels mankind to wonderful attempts. The cliffs which contain the objects of their fearch are often two hundred fathoms in height, and are attempted from above and below. In the first case, the fowlers provide themselves with a rope eighty or a hundred fathoms in length. The fowler fastens one end about his waift and between his legs, recommends himfelf to the protection of the Almighty, and is lowered down by fix others, who place a piece of timber on the margin of the rock, to prevent the rope from wearing against the sharp edge. They have besides a small line fastened to the body of the adventurer, by which he gives fignals that they may lower or raife him, or shift him from place to place. The last operation is attended with great danger, by the loofening of the stones, which often fall on his head, and would infallibly destroy him, was it not protected by a strong thick cap; but even that is found unequal to fave him against the weight of the larger fragments of rock. The dexterity of the fowlers is amazing; they will place their feet against the front of the precipice, and dart themselves

\* Brunnich, p. 46.

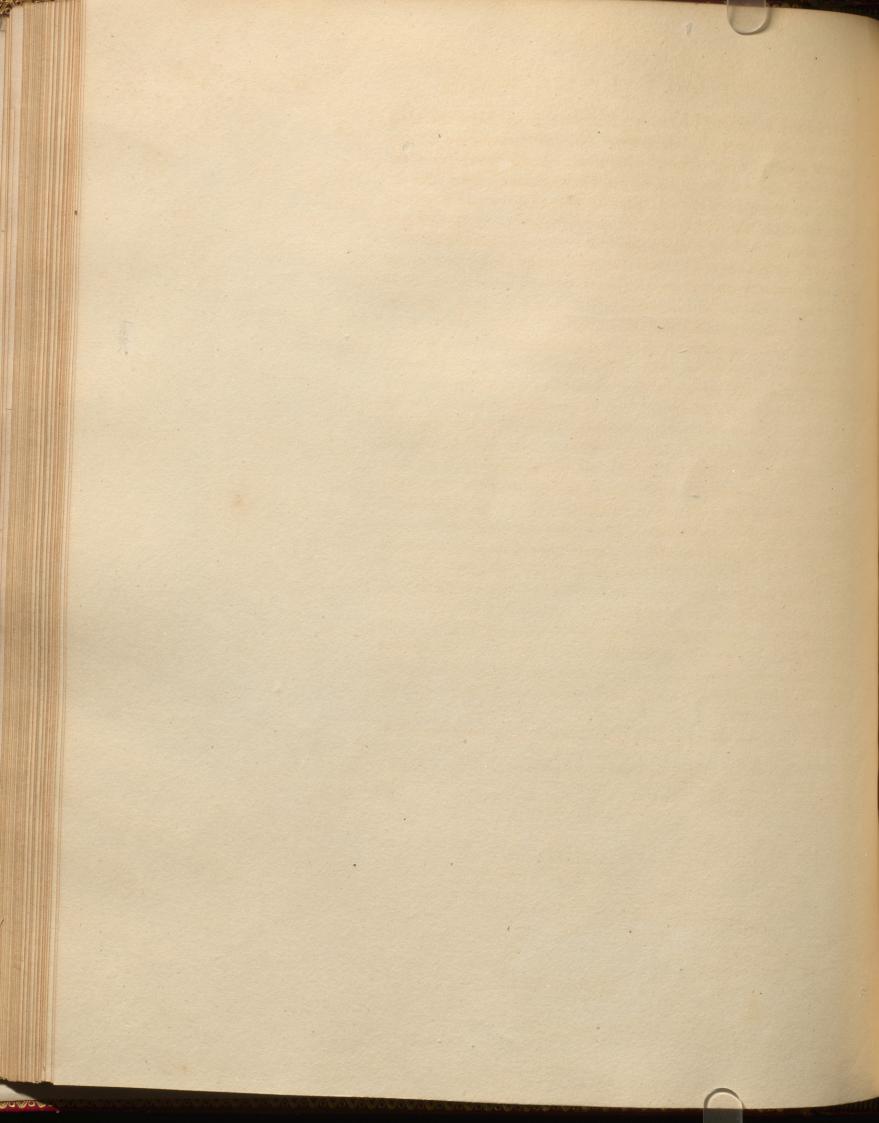
fome



LITTLE GUILLEMOT



SUIDRO and the MONK ROCK.



some fathoms from it, with a cool eye survey the places where the birds neftle, and again shoot into their haunts. In some places the birds lodge in deep recesses. The fowler will alight there, disengage himself from the rope, fix it to a stone, and at his leifure collect the booty, fasten it to hisgirdle, and resume his pendulous seat. At times he will again spring from the rock, and in that attitude, with a fowling net placed at the end of a staff, catch the old birds which are flying to and from their retreats. When he hath finished his dreadful employ, he gives a fignal to his friends above, who pull him up, and share the hard-earned profit. The feathers are preserved for exportation: the flesh is partly eaten fresh, but the greater portion dried for winter's provision.

The fowling from below has its share of danger. The party goes on FROM BELOW. the expedition in a boat; and when it has attained the base of the precipice, one of the most daring, having fastened a rope about his waist, and furnished himself with a long pole with an iron hook at one end, either climbs, or is thrust up by his companions, who place a pole under his breech, to the next footing fpot he can reach \*. He, by means of the rope, brings up one of the boats crew; the rest are drawn up in the same manner, and each is furnished with his rope and fowling-staff. They then continue their progress upwards in the same manner, till they arrive at the region of birds; and wander about the face of the cliff in fearch of them. They then act in pairs; one fastens himself to the end of his associate's rope, and, in places where birds have neftled beneath his footing, he permits himself to be lowered down, depending for his security to the strength of his companion, who is to haul him up again; but it fometimes happens that the person above is overpowered by the weight, and both inevitably perish. They fling the fowl down to the boat, which attends their motions, and receives the booty. They often pass seven or eight days in this tremendous employ, and lodge in the crannies which they find in the face of the precipice.

The fea which furrounds thefe islands is extremely turbulent. The

In Pontoppidan's Hift. Norway, ii. 61. is a plate expressive of this manner of fowling.

BLACK GUILLENIOT.



tides

tides vary greatly on the western and eastern sides. On the first, where is received the uninterrupted shood of the ocean from the remote Greenland, the tide rises seven fathoms: on the eastern side it rises only three. Dreadful whirlwinds, called by the Danes, oes, agitate the sea to a strange degree; catch up a vast quantity of water, so as to leave a great temporary chasin in the spot on which it falls, and carries away with it, to an amazing distance, any sishes which may happen to be within reach of its sury. Thus great shoals of Herrings have been sound on the highest mountains of Feroe. It is equally resistless on land, tearing up trees, stones, and animals, and carrying them to very distant places. We must no longer laugh at the good archbishop \*, who gravely tells us, that at times, the Rats called Lemming are poured down from the clouds in great showers on the Alps of Norway. We affent to the fact; but must solve the phænomenon by ascribing it to a whirlwind, as he does in one place; yet immediately supposes they may be bred in the upper regions out of feculent matter.

Among the numerous whirlpools of these seas, that of Suderoe, near the island of the same name, is the most noted. It is occasioned by a crater, fixty-one fathoms in depth in the centre, and from fifty to fifty-five on the fides. The water forms four fierce circumgyrations. The point they begin at is on the fide of a large bason, where commences a range of rocks running spirally, and terminating at the verge of the crater. This range is extremely rugged, and covered with water from the depth of twelve to eight fathoms only. It forms four equidiftant wreaths, with a channel from thirty-five to twenty fathoms in depth between each. On the outfide, beyond that depth, the fea fuddenly finks to eighty and ninety. On the fouth border of the bason is a lofty rock, called Sumboe Munk, noted for the multitude of birds which frequent it. On one fide, the water is only three or four fathoms deep; on the other fifteen. The danger at most times, especially in storms, is very great. Ships are irresisfibly drawn in: the rudder loses its power, and the waves beat as high as the masts; so that an escape is almost miraculous: yet at the reflux, and in very still

\* Olaus Magnus, Archb. of Upfal.

weather,

weather, the inhabitants will venture in boats, for the fake of fishing. Mr. Debes omits the times of greatest danger. It is to be hoped that attention will be paid to the various periodical appearances of a phœnomenon, the cause of which is very satisfactorily explained by the worthy pastor \*.

Mankind found their way to these islands some time before the discovery of Iceland. Naddodd, a Norwegian pirate, had retired here, as the only place of security he could find †. About this time, Harold Harfagre possessed himself of Norway, and slung off the Danish yoke. A party was formed against him; but it was soon subdued, and the male-contents quitting the kingdom, retired to the Hebrides, Orknies, Schetland, and Feroe, and gave rise to the Norwegian reign in all those islands.

From the Feroe islands, the hardy Scandinavians made the next step, in their northern migrations, to

### ICELAND.

ICELAND.

I must premise, that there is the highest probability that this island was discovered in an age most remote to theirs: and that it was the Thule of Pytheas, an illustrious Marseillian, at lest cotemporary with Aristotle; and who pushed his discoveries towards the north, as his countryman Euthymenes did beyond the line. Pytheas arrived at Thule, an island, says he, six days sailing northward from Britain, where, he informs us, was continual day and night for six months alternately §. In the first he is very accurate. A vessel from Tarmouth was about two years ago exactly that time in its voyage from the Orknies to Iceland, but with a fair wind it may be done in eight and forty hours. So circumstanced, there are many parts of Britain, far more south than the Orknies, from which the voyage might be performed in the time mentioned by Pytheas. He does not exactly hit on the length of day and night; but he could have been at no other, at that distance

<sup>\*</sup> See his plan, p. 52. † Island's Landnamabok, 5. † The works of Pytheas had been read by Dicæarchus, a disciple of Aristotle. See Strabo, lib. ii. p. 163. § Plin. lib. ii. c. 75.

from Britain, but Iceland, in which there was a most remarkable absence of light. As to Naddodd, in 861, he was accidentally driven by a tempest to the eastern side of Iceland, to a place now called Reidarfiall. He found the country covered with snow, and therefore named it Snæland; yet he returned home full of its praises. Soon after, Gardar, a Swede, experienced the same fortune. On a woyage to the Hebrides, he was tempest-driven to the same island; on which, by the advice of his mother, who was a fort of diviner, he landed at Horn. At this period Iceland was cloathed with wood from the shore to the very tops of the mountains. He wintered there, and likewise returned full of its praises \*.

FLOKE, a celebrated pirate, was the next adventurer. He took with him three Ravens, and, like another Noah, made them the augury of the land. Before he failed, he performed a great facrifice for the fuccess, upon a vast pile of stones, which he raised for the purpose. This points out another origin of the vast tumuli we so frequently see. He made the Schetland and the Feroe isles his first steps; and loosed from the last for Iceland, the nearest point of which is about five hundred and forty miles distant. His first Raven returned to Ferce: the second slew back to the thip: the third directed him to the wished-for land †. He wintered there. The cattle he brought with him perished through want. The spring proved unusually cold, and the sea appeared full of ice; for which reason he bestowed on the island the name it at present bears. Floke grew discontented with his voyage: and returned full of dispraises of the country. This did not discourage other adventurers, all of them Scandinavians, thrust out of the exuberant northern hive. The rest of the world, which their countrymen ravaged, was affuredly too small for them, otherwise they never would have colonized almost the most wretched spot in the northern hemisphere. Ambition possibly actuated the leaders, who might think it

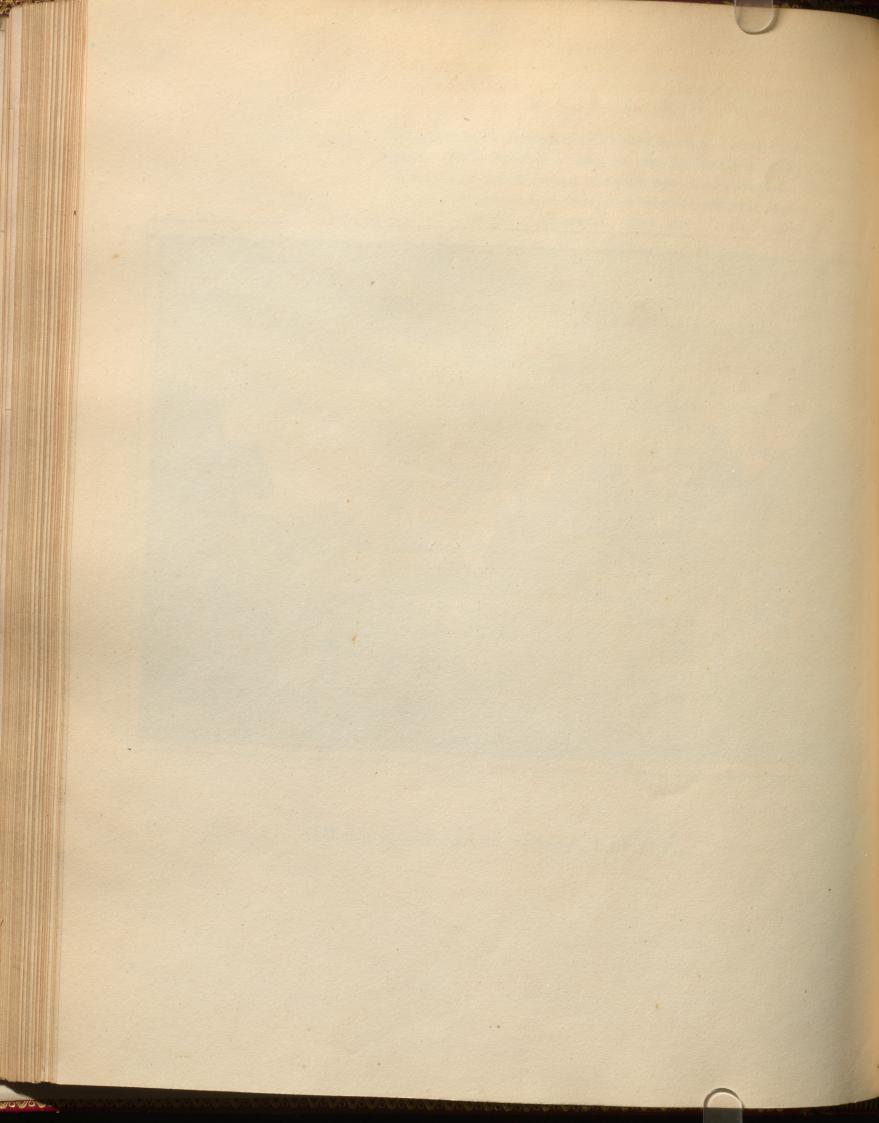
Better to reign, in hell than ferve in heaven.

Colony

<sup>\*</sup> Island's Landnamabok, p. 7. + Same, p. 8. Torfaus. Hift. Norvag. ii. 97.



AVILLAGE near BASSASTADE



Colony after colony arrived. They confederated, and formed a republic, which existed near four hundred years; but with as many seuds and staughters as could happen in a climate where luxury might pamper and corrupt the inhabitants. In 1261, wearied with their diffensions, they voluntarily re-united themselves to their mother-country, Norway, under the reign of its monarch Haquin. It is remarkable, that the poetic genius of their aboriginal country slourished with equal sublimity in every climate. The Scalds, or bards, retained their fire in the inhospitable climate of Iceland, as vigorously as when they attended on their chieftains to the mild air of Spain, or Sicily, and sung their valiant deeds.

Every thing which furnished topics to the poets of other countries, was, in the most remote period, wanting here. Groves, verdant meadows, purling streams, and gentle zephyrs, were totally unknown; and in their stead, stunted shrubs, a thin herbage, rude torrents, and sierce gales, reign in every part. We admit the apology of the learned Torfæus for the prefent state of his country \*. Violent tempests might cover whole tracts with the unstable sand, eruptions of water from the mountains desolate some parts, earthquakes bury vast extents of fertile land with fragments of rocks, and inundations of the sea change the sace of others. But soft scenery was not requisite to inspire poets who were to sing only the preparations for warlike exploits, the slaughter of a battle, the deeds of their heroes, and the magic solemnities of superstitions.

The island, at present, exhibits to the traveller amazing slopes of lava, which once streamed from the vulcanoes, and terminated in the sea. Such is the appearance, about three miles from Hafnaisoird, in lat. 64. 4. of vast masses of lava piled to a montanous height upon each other, broken, vitristed, sharp, rude, and black. In parts, sandy tracts intervene: in others, a soil peculiar to the place, a tusa, originated from the violent eruptions of impure water which rush from the mountains, attendant on the stery eruptions. Vallies composed of a very thin soil, afford grass for a numerous breed of cattle and sheep. Here is sound variety of species of the best grasses; of the aira, poa, sessue, and carex. Part is harvested against winter; but not in such plenty, but that the farmer is obliged

LAVA about 12 3 Miles from often HAFNAIFOIRD.



often to feed his stock with the wolf-fish, or the heads of cod-fish beaten small, and mixed with a quarter part of hay. To what food will not necessity compel both man and beast to recur!

Snow does not lie here fo long or fo deep as might be expected in this high latitude: but this may be explained from the fubterraneous fires, which pervade, possibly, all parts of the island.

Woods Long Lost.

DRIFT-WOOD.

The woods of Iceland have long fince vanished, unless we except a few stunted birch, scarcely ten feet high, and four inches in diameter; and a few species of willow, so small and so rare as scarcely to be of use to the inhabitants. But they are abundantly supplied with drift-wood from Europe and America, as appears by the species found on the shores, especially on all the northern coast, as Langaness on the north-east, and Hornftrandt on the north-west. That woods were found here in very remote periods, is very evident, from the quantity of futurbrand met with in several parts; which still retains traces of its vegetable origin; the marks of branches, and circles of the annual growth of the wood: fome pieces are even capable of being planed. It is found in the fiffures of the rocks, much compressed by their weight, and in pieces sometimes big enough to make a middle-fized table. This is fometimes used as fuel; but the want of it is supplied, in some measure, by the drift-wood, by peat, and by feveral strange substitutes, the effect of necessity. Smiths prefer the futurbrand to sea-coal in their business. The beds of this fossil strongly refute the notion of Iceland having been entirely formed by vulcanic violence, fince the original creation; and raifed out of the fea in later times, as others have been known to have done. Delos and Rhodos, in very remote ages; Thera, the modern Santorini, and Therafia, in the 135th Olympiad; Thia, in the time of Pliny \*; and in the beginning of this century another fprung from the fea, by the force of subterraneous fires, near to Santorini +: and, while I am now writing, an island is forming by the same cause, not remote from the Reickenes, part of the very island in question. But these futur or forte brands are certainly the remains of antient forests, overturned and buried by earthquakes, after the golden age

\* Hift. Nat. lib. ii. c. 87. v. 196, &c.

† Most admirably described in the Ph. Trans. Abridg.

of



of the island. Let me add to this another proof, from the number of its vegetables: there being found on it not fewer than three hundred and nine perfect, and two hundred and thirty-three cryptogamous plants. On the isle of Ascension, which is totally and aboriginally vulcanic, a Flora of not more than seven plants is to be seen \*.

This vast island extends from 63. 15. to about 67. 18. north latitude: is reckoned to be five hundred and fixty English miles long, and about two hundred and fifty broad +. It has a rugged coast, indented deeply with fecure bays; but faced with very few isles. It lies in the Hyperborean ocean, divided from Greenland by a streight about three hundred English miles broad, reckoning from Huitferk in Greenland to Snæfiæll-nes in Iceland 1. The whole is traversed with great ridges of mountains; some naked, and usually free from snow, by reason of the saline and sulphurous particles with which they abound. Others, called Jokkuler, are cased with eternal ice and fnow; and are the glacieres of Iceland. Of these, Snæfiæll Jokkul, which hangs over the fea in the fouth-west part of the island, is far the highest |. Out of these, at different periods, have been tremendous eruptions of fire and water, the burit of which is attended with a most terrific noise: flames and balls of fire issue out with the smoke: and showers of stones are vomited up; of which there has been an instance of one weighing near three hundred pounds being flung to the distance of four miles. The heights of few of the mountains have been taken; but that of the Hecla-fiall is not far short of seventeen hundred yards. Of this species of mountain, Hecla has been most celebrated, standing within fight of the numerous shipping which for ages have frequented this island: the records of Iceland enumerate ten of its eruptions fince the arrival of the Norwegians. It was the hell of the northern nations; but they feem divided in their opinions, whether the pains of the damned arose from fire, or, what was more tremendous to the natives of these countries, from the cold §.

> To bathe in fiery floods, or to reside In thrilling regions of thick-ribbed ice.

\* Osbeck's Voy. ii. 98. Forster's Voy. ii. 575, 576. † Mallet, i. 15.

† Mr. Thorkelin. | See Olaffen, i. tab. xvii. § Bartholinus de Contemptu Mortis, 359.

Hecla

PLANTS, NUM-BER OF.

HECLA-

# CAPE HECLA.



ERUPTIONS OF HECLA. Hecla has been known to have had only ten eruptions between the years 1104 and 1693; from the last period it remained quiescent till the year 1766, when it burst out in slames and lava. It emitted slames in 1771 and 1772; but did not overslow with stema, or a stone flood. But other vulcanoes have, in the present century, proved the spiracles to the internal fires of Iceland. Fiery eruptions are not confined to the mountains. A few years ago they burst out of the sulphureous foil of the low parts of Skastasseld Syssel or province; and the lava had overslown the country for the space of thirty miles, and at last reached the sea, destroying every thing in its progress. It dried up the rivers, and filled their beds with lava. Moors in some places stopped its course; but it totally changed their nature. It had taken to the deserts of the same province, and began to spread to the east, or Mule Syssel, the most populous and fruitful part of the island; nor were there any signs of its ceasing at the time when this account was sent to me.\*

HECLA PROVED TO BE HELL.

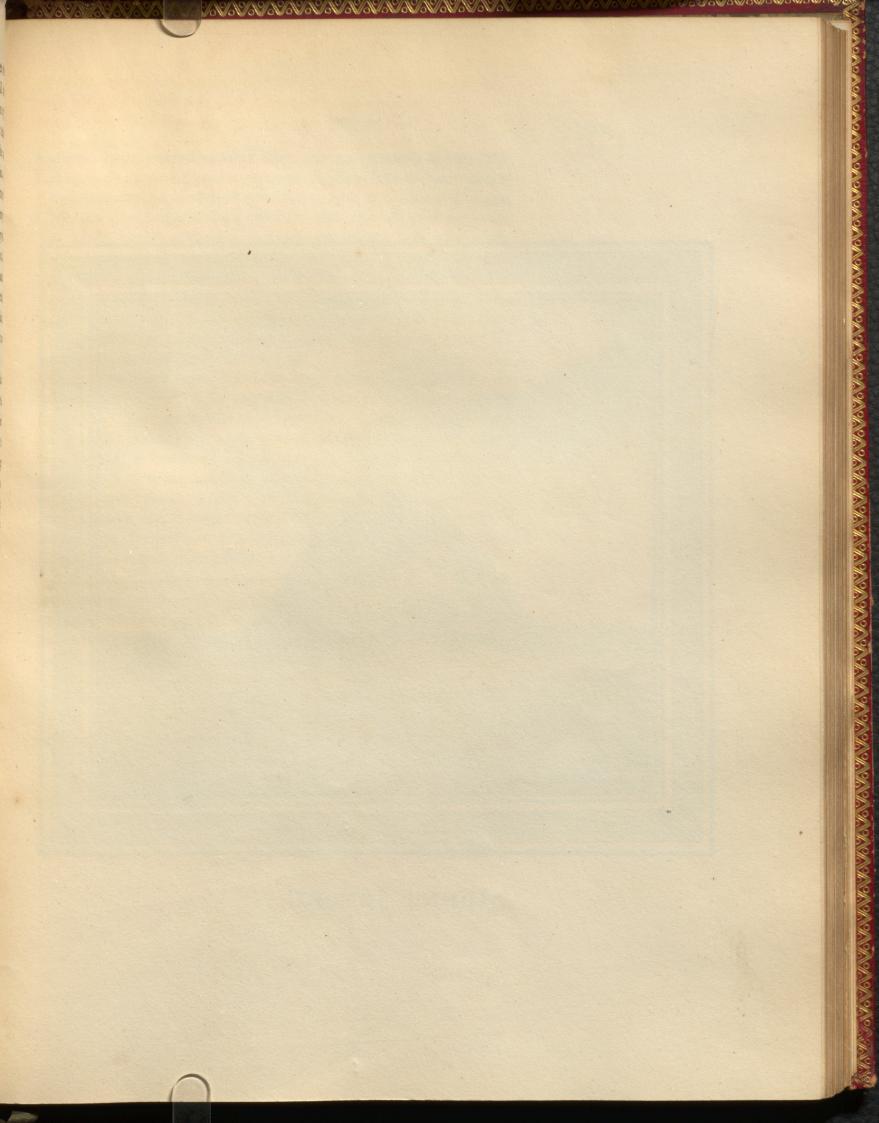
The author of the Speculum Regale contends strongly, that Hecla ought to have the honor of being the feat of the damned, in opposition to Ætna; which he clearly proves by these arguments: 'De slammis Ætnæis samâ e percepi quod admodum furent; hæ vero et lignum comburunt et terram. Jam in Dialogo fancti GREGORII perhibetur in SICILIA, igneque ibidem ardente, pœnarum locum esse; in igne vero, qui in Islandia Alagrat, multo majore verisimilitudine concludi posse reor certum pæ-' narum locum esse. Ignis enim Siciliæ, cum terram et ligna consu-' mat, vivas res sibi in alimentum convertit : lignum quippe vitam habet, ' utpote quod crescat, virentiaque solia emitat; ac tandem mori inci-' piens, flaccescat et arescat : quamdiu autem viret, vivum dici meretur; et ubi flaccescit, in extremis agere. Vitam autem terræ non de nihilo tribues, cum insignem fructuum copiam proferat, quibus decidentibus et e putrefactis, novos iterum fructus producit; neque minus eapropter vi-' vere dicenda est, quod ex ipsa factæ sint omnes creaturæ corporeæ. Horum utrumque, lignum nempe et terram, ignis Stoillæ comburit, iisque

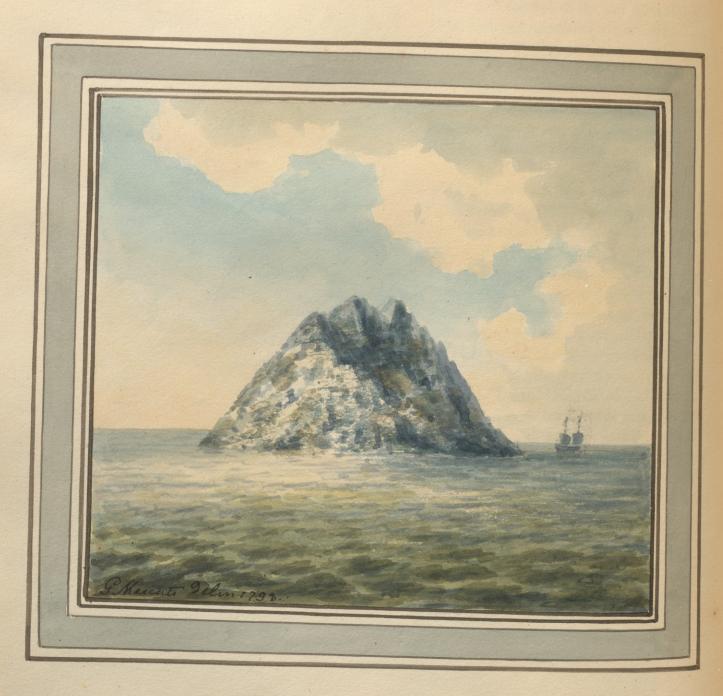
\* See the account of this dreadful calamity in the Appendix.

alitur.



REICKENES.





MOUNT JEUGEL.

- alitur. Ignis autem Islandiæ ligna terramve, quamvis in eum conji-
- ciantur, non comburit; lapides autem et durissima saxa, ut suum alimen-
- tum, confumit, iifque nutritur non fecus ac ignis communis aridis lignis.
- Nec tam dura cautes aut lapis invenitur, quin ceræ ad instar liquescant,
- ' ac deinde, pinguis olei more, flammam concipiant; ligna vero injecta
- dictus ignis exterius tantum adurit, penitus nunquam confumit. Iccirco
- · quoniam bic ignis inanimatis solum creaturis, cujusmodi lapides et saxa esse
- novimus, amat accendi, et rebus, quæ a communi igne folent confumi,
- ' nutriri recusat, mortuus jure dici meretur; ideoque de ipso, potius quam
- f aliis, verifimiliter concluditur, quod fit ignis infernalis, cum mortuæ fint
- omnes res quas infernus habet.'

The mountains of *Iceland* are of two kinds, primitive and posterior; the first consist of strata, usually regularly, but sometimes consused, laid on each other. They are formed of different sorts of stone, without the lest symptom of fire. Some are composed of different sorts of saxum arenarium, or fand, or free stone; petrosilex, or chert, slaty or sissile stone, and various kinds of earths, and boles, and steatite; different sorts of breccie, or conglutinated stones; jaspers of different kinds; refracting spathum, or what is usually called sceland crystal; the common rhomboid spathum; chalcedonies, stratisted and botryoid; zeolites of the most elegant kinds; chrystals, and various other substances that have no relation to vulcanoes.

The Snæfiæll Jokkul is far the loftiest of the icy mountains, being about two thousand two hundred and eighty-seven yards high. From the summit is a tremendous prospect of vulcanic remains, even as far as the eye can reach. The Snæfiæll-nes, or cape which darts from it, towers to about the height of three or four hundred fathoms.

By the great map of *Iceland*, made by the direction of the king of *Denmark*, and completed in 1734, by *Cnopf*, military furveyor, it appears that fome of the jokkuls, or mountains, cafed with ice, have been fwallowed up by the convultions of the earth, in very diftant periods. Those of *Breidamerkar* and *Skeida*, in *Skaftafield Syffel*, are given as instances.

Probably the great vatns, or lakes, with which Iceland abounds, may have been once the fite of fuch finkings of mountains. The ingenious Mr.

Mountains of Iceland.

SNÆFIÆLL.
JOKKUL.

JOKKULS OFTEN SWALLOWED UP,

Mr. Whitehurst records several instances in other parts of the world \*. In the island in question, that vast lake Myvatn may have been one; its bottom is entirely formed of lava, divided by deep cracks, which give shelter during winter to the abundance of trouts this lake is stocked with. It is only five fathoms deep, but originally was of a vast depth. In 1728 it was nearly filled by an eruption of the great mountain Krasse: the stery stream took its course toward Myvatn, ran into it with a horrible crackling and hissing; and this phænomenon continued till 1730, when it ceased, being by that time exhausted.

ROCKS OF DRANGO.

Hornstrand, or the coast by the North Cape, is very high; from three to four hundred fathoms. The fine rocks of Drango are most picturesque stacks, seven in number, of a pyramidal shape, rising out of the sea at a small distance from the cliffs; four are of a vast height, and form a most magnificent scenery.

Solvahamar is a tremendous range of vulcanic rocks, composed entirely of flags, and the front covered in the season with sea fowl. It is endless to name all the places which bear the marks of fire, in various forms, either by being vitrified, changed to a fiery color, ragged, and black; or bear the marks of having run in a smooth sloping course for miles to the sea, and hardened into memorials of the horrible phænomenon.

The island produces most sorts of the lava which other vulcanic places have thrown up; the dark grey perforated kind, similar to the toadstone of Derbyshire; the Iceland agate, or pumex vitreus, both the niger and viridis: some have conjectured this to have been the lapis obsidianus of the antients, which they formed into statues †. The finest I ever saw was brought from Vulcano, off the coast of Sicily, but it seems very ill calculated for sculpture. The pumex vulcani is also sound here, the cinerarius, and the arenaceus. Besides the suturbrand, jet is sound here in quantity.

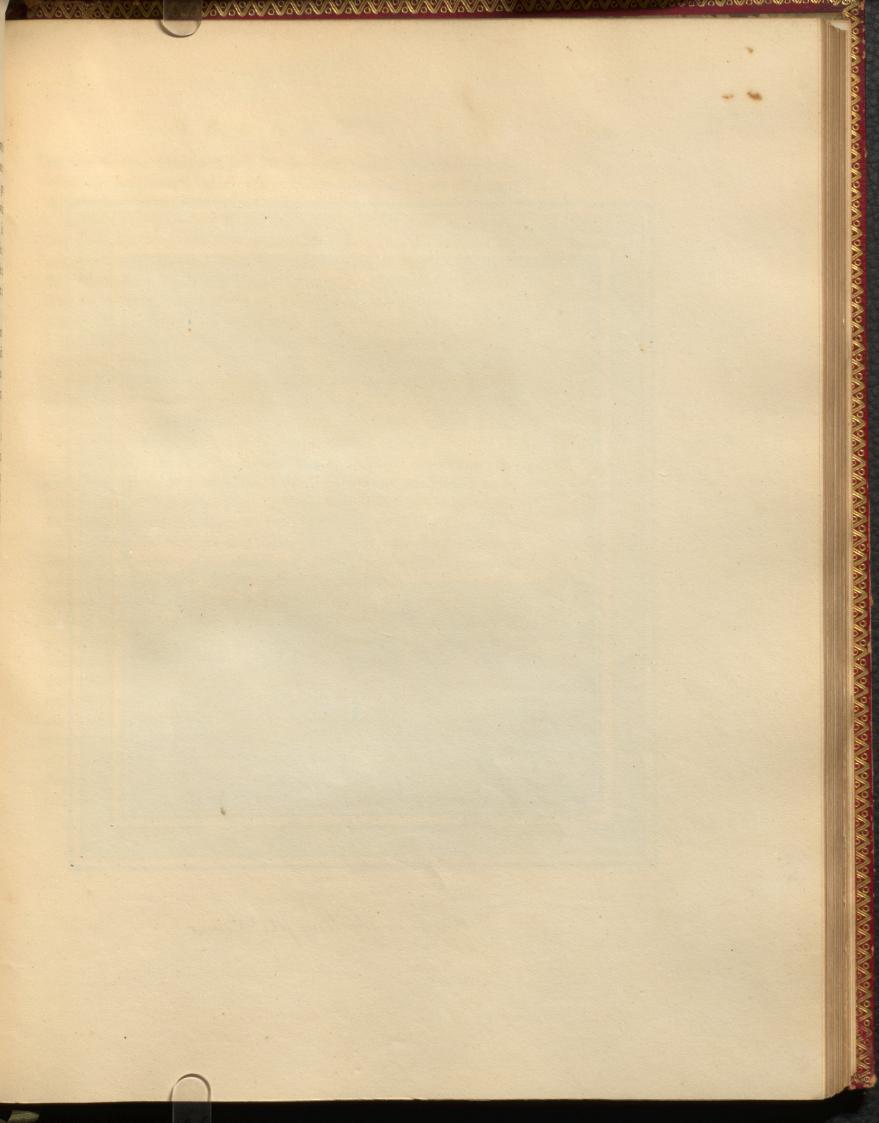
Certain iron ores are found in different parts; and that elegant copper ore, the *malachites*, with a naturally polished green surface, rising into tubera, is not unfrequent. *Horrebow* speaks of native silver; but the mine-

\* Whitehurst on the Earth, second edit. 71, 72. + Plinii, Hist. Nat. lib. xxxv1. c. 26.

ral

LAVA.

ORES.





Huers, or Boiling Jets D'eaux.

ral wealth of the island will probably be long latent. The slavery under which the poor natives labor, will ever discourage them from effecting a discovery, of which others are to reap the advantage.

A stratum of sulphur is found near Myvatn, from nine inches to two feet in thickness; it is partly of a lemon colour, and partly of a deep orange. Immediately over the fulphur is a blue earth; above that a vitriolic and aluminous earth; and beneath the fulphur a stratum of reddish bole. This fulphur has been worked and refined by the commercial company of Copenhagen. Semipellucid, and I think genuine native fulphurs, are unknown in Iceland. The fulphur mines in Guldbringa Syffel are by no means inferior to these.

BASALTES, in variety of forms or degrees of crystallization, are found in many parts of Iceland, from a cracked furface, to a completion of the columnar shape. The most curious are those in Baula, the highest mountain in Borgar-fiord Syssel. This is of a grey color

THE FOUNTAINS of many of the vallies are of a most extraordinary na- Huers, or Boilture; are called Huers, and form at times jets d'eaux of scalding water, ING JETS D'EAUX. ninety-four feet high, and thirty in diameter, creating the most magnificent gerbes in nature! especially when backed by the setting fun. They arise out of cylindrical tubes of unknown depths: near the surface they expand into apertures of a funnel shape, and the mouths spread into large extent of stalactitical matter, formed of successive scaly concentric undulations. The playing of these stupendous spouts is foretold by noises roaring like the cataract of Niagara. The cylinder begins to fill: it rifes gradually to the furface, and gradually encreases its height, smoking amazingly, and flinging up great stones. After attaining its greatest height, it gradually finks till it totally disappears. Boiling jets d'eaux, and boiling fprings, are frequent in most parts of the island. In many parts they are applied to the culinary uses of the natives. The most capital is that which is called Geyser, in a plain rising into small hills, and in the midst of an amphitheatre, bounded by the most magnificent and variousshaped icy mountains; among which the three-headed Hecla soars preeminent.

SULPHUR.

BASALTES.

K

Hueravalle

Hueravalle is spoken of by Olassen as the most surprising collection of boiling water, or jets d'eaux, in the island. The mountain grass grows in plenty near them; and not far from the burning bugel or tumulus, formed round one of these jets, is a lake in which swans were swimming; and in a small spring were several trouts: so near to each other is the cold and the boiling water. Eastward and southward are great tracts of Kiol-braun, or tracts covered with vast masses of lava. Hueravalle takes its name from buersva, to whirl round; wadirbwirsel signifies a whirlwind, and wattanwirsel a whirlpool. Among the many springs near Skallbolt, which are called zuallen, two are very particular: one is on the west side, the other on the east side: the Icelanders boil their milk, and dress their meat, by their assistance; and they use them also for washing and sulling. They even calcine with them the dry bones of oxen or sheep.

The burning fountains have been taken notice of (p. 146.) by the au-

thor of the Speculum Regale.

IN THE SEA.

These Huers are not confined to the land. They rise in the very sea, and form scalding sountains amidst the waves. Their farthest distance from the land is unknown; but the new vulcanic isse, twelve miles off the point of Reickenes, emitting fire and smoke, proves that the subterraneous fires and waters extend to that space; for those awful effects arise from the united sury of these two elements \*. The depth of water between this new creation and the Geir-fugl Skier, is forty-four fathoms; ten leagues to the west, two hundred and five: and the bottom composed of black sand †; doubtless no other than the Pumex arenaceus, the frequent evonition of vulcanoes. How much past human comprehension must the powers have been, that could force up materials for an island, even from the medium depth I have given! and how deep beneath the bottom of the ocean must have been the causes which could supply stone, or pumice, or lava, to fill the space which this island occupies, many miles in circumference, and possibly above a hundred fathoms in depth!

<sup>\*</sup> See Mr. Whitehurst's Theory. au Nord, par M. de Kerguelin, 69.

A Sable noir comme la poudre a canon. Voyage



SKIER FUGL.



REICKENES.

If some islands spring out of these seas, others are swallowed by the force of earthquakes. Their foundations are undermined by the fury of the fubterraneous elements, which carries off the materials of their basis, and discharges it in lava, or different forms, through the vulcanic spiracula. The earthquakes shatter the crust on which they stand, and they tumble into the great abyss. Such was the fate of the nine isles of Gauberman, which lay about four leagues from Sandaness, between Patrixford and Cap Nort, all which suddenly disappeared. Their names still exist in feveral maps; but their place is only diftinguishable by the superior depth of water in the fpot on which they flood \*.

The number of inhabitants in Iceland is at present computed not PEOPLE, NUMBER to exceed forty-two thousand, as I have been affured by Mr. Thorkelin, a most amiable and learned native of the island in question, now on his travels in England. When Mr. Von Troil visited Iceland in 1772, the inhabitants were estimated at fixty thousand, but their numbers were rapidly decreasing. How rapid has been the progress towards the extinction of this unhappy people! Confidering the ungenial furface of this vast island, probably the number is equal to the means of support. Writers apologize for the fewness of inhabitants, by attributing it to the almost depopulation of the place by the forte diod, or black death, a pestilence which commenced in Cathay, or China, in 1346, spread over all Afia, and Africa, reached the fouth of Europe in 1347, and in 1348 fpread itself over Britain, Germany, and northern Europe, even to the extremity of the inhabited north. The small-pox, and other epidemics, are mentioned as contributing to thin the island. During the time of the plague, tradition relates, in terms most graphically horrid, that the persons who escaped to the mountains, faw the whole low country covered with a thick pesti-Besides the dearth of food in this rude island, other causes contribute to prevent the increase of inhabitants. Necessity forces

PESTILENCE.

\* Voyage au Nord, par M. de Kerguelin, 65, 66.

the

K 2

the men to feek from the fea fubfiftence, denied by their niggardly land. Constant wet, cold, and hard labor, abridge the days of thousands; and that labor is increased tenfold, to supply the rapacity of their masters. Incredible as it may feem, a late king of Denmark fold the whole island, and its inhabitants, to a company of merchants, for the annual rent of one thousand pounds. This company enflave the poor natives; who are bound to fell their fish, the staple of the island, at a low price to these monopolizers; who, dreading refistance, even have taken from them the use of fire-arms! Here is given a stronger cause of depopulation, perhaps, than the others; for Hymen can have but faint votaries in the land from whence liberty is banished. But for these causes, here ought to be found the genuine species of the Norman race, unmixed with foreign blood; as must be the case with every place remote from the rest of the world. Here are to be fought the antient customs and diet of their original stock, which are now probably worn out in the land of their distant ancestors. The luxury of food has fo little crept in among them, that their meat and drink in general is peculiar to themselves; and much of the former composed of herbs neglected in other places.

DRESS.

The dress of the natives seems unchanged for a very considerable time: that of the men is simple, not unlike that of the Norwegian peasants \*; that of the females is graceful, elegant, and peculiar to them, and perhaps some very old-fashioned Norwegian lady. They ornament themselves with silver chains and rich plates of silver, beautifully wrought. On their head is a losty slender dress, not unlike a Phrygian bonnet. I cannot compare this to any antient European sashion. Isabel of France, queen to Edward II. wore a head-dress of an enormous height, of a slender conic form †; but which, for want of the slexure at top, gave place in elegance to the taste of the Icelandic sair.

Mr. Troil awakens our curofity about the Icelandic antiquities; speaks of castles, and heathen temples, and burying-places, and upright stones,

† Montfaucon. Monum. de

and

<sup>\*</sup> See Olaffen, i. tab. iii. Pontoppidan, ii. tab. p. 272. † Montfau la Monarchie Fr. ii. tab. xlii.

and mounts. Of the first I am solicitous to gain some further knowlege, for possibly they might direct to the origin of the round buildings in the Hebrides, Orknies, Schetland, and the north of Scotland \*: others feem to me the various Scandinavian antiquities, admirably exemplified in Baron Dablberg's Suecia Antiqua et Moderna.

The species of quadrupeds of this island are very few. Small horses of Domestic Quaa hardy kind; cows in great abundance, and mostly hornless, the slesh and hides of which are confiderable articles of exportation. Sheep are met with in great flocks in every farm; the wool is manufactured at home, the meat falted, and, with the skins, much of it is fold to the Company, at the twenty-two ports allotted for the purposes of traffic. It is remarkable, that the climate disposes their horns to grow very large, and even to exceed the number of those of the sheep of other countries; examples of three, four, and five, being extremely frequent. Goats and fwine are very scarce; the first, for want of shrubs to brouze, the last through deficiency of their usual food, and the supply which the farm-yards of other countries afford.

The dogs are sharp-nosed, have short and sharp upright ears, bushy tails, and are full of hair. Here are domestic cats; but numbers are grown wild, and multiply among the rocks, fo as to become noxious. The reader need not be reminded, that these, and every species of domestic animals, were originally introduced into Iceland by the Norwegians.

An attempt has been made to introduce the REIN DEER. Those which furvived the voyage have bred frequently. There can be little doubt of their fucceeding, as Iceland has, in common with Lapland, most of the plants for their fummer food +, and abundance of the Rein Deer lichen for their winter provision.

RATS and MICE feem to have been involuntarily transported. Both the domestic species are found here; and the white variety of the Mouse, called in the Icelandic, Skogar Mys, is common in the bushes. I suspect that there is a native species, allied, as Doctor Pallas imagines, to the Œco-

RATS.

<sup>\*</sup> Voy. Hebrides. + Confer. Olaffen. ii. 234. and Aman. Acad. iv. 151.

NOMIC; for, like that, it lays in a great magazine of berries by way of winter-stores. This species is particularly plentiful in the wood of Husafels. In a country where berries are but thinly dispersed, these little animals are obliged to cross rivers to make their distant forages. In their return with the booty to their magazines, they are obliged to repass the stream; of which Mr. Olassen gives the following account:—" The party, which consists of from six to ten, select a stat piece of dried cow-dung, on which they place the berries in a heap in the middle; then, by their united force, bring it to the water's edge, and after launching it, embark, and place themselves round the heap, with their heads joined over it, and their backs to the water, their tails pendent in the stream, serving the purpose of rudders \*." When I consider the wonderful sagacity of Beavers, and think of the management of the Squirrel, which, in cases of similar necessity, make a piece of bark their boat, and tail their sail †, I no longer hesitate to credit the relation.

Foxes.

The COMMON Fox, and the ARCTIC, are frequent; are proscribed, and killed for the sake of a reward, in order to prevent the havock they would make among the sheep.

BEARS,

The Polar Bear is often transported from Greenland, on the islands of ice; but no sooner is its landing discovered, than a general alarm is spread, and pursuit made till it is destroyed. The Icelanders are very intrepid in their attack on this animal; and a single man, armed only with a spear, frequently enters the lists with this tremendous beast, and never fails of victory. A person who lived near Langeness, the extreme northern point, where the Bears most frequently land, is still celebrated for having slain not sewer than twenty in single combat. There is a reward for every skin, which must be delivered to the next magistrate.

The COMMON BAT, A. is fometimes found in this island, and finishes the list of the land-animals of the country.

The amphibious quadrupeds, or Seals, are very numerous. Iceland, being bleffed with domestic animals, has less use of this race than other

\* Olaffen, as related to him.

+ Linnæus, Klein, Rzaczinski, Scheffer.

Arttic



BURGER FIORD.



BURGER FIORD.

Artic countries; yet they are of confiderable advantage. The skins are used for cloathing; a good one is equal in value to the skin of a sheep, or the hide of a cow; and the fat supplies the lamps in the long nights with oil. The Common, during winter, is excessively fat, and will yield fixty pounds.

The Icelanders have two species of native Seals: the Common, called by them Land-Salur, because it keeps near the coast; the other, the GREAT, or Ut-Salur. They are taken in nets placed in the creeks and narrow bays, which they pass through to get on shore. When it begins to grow dark the hunters make a fire, and fling into it the shavings of horns, or any thing that fmells strong; this allures the Seals, who strike into the nets, and are taken. At other times, a koder or lure is tied to a rope, and placed before the nets; to which the Seals, supposing it to be some strange animal, will eagerly swim, and strike into the nets, paying with their lives for their curiofity. This carries them fometimes fo far, that they will stray to a confiderable distance inland, attracted by a candle, or the fire in a smith's forge. If they are taken young, they are capable of being tamed: they will follow their mafter, and come to him like a dog, when called by the name which is given them. The Icelanders have a strange superstition about these animals: they believe they resemble the human species more than any other, and that they are the offspring of Pharach and his host, who were converted into Seals when they were overwhelmed in the Red Sea.

Other species of Seals are migratory. Among them is the HARP, or Vade-Selur. These quit the seas of Iceland, in March, and swim through the streights of Davies, by some unknown opening, to the farthest north; bring forth their young, and return, by the north of Greenland, in May, extremely lean, to the north of Iceland; continue their route, and return to that island about Christmas, chiesly upon the drist-ice, on which they are either shot or harpooned. The Hooded Seal, or Bladru Seal, is tarely taken here. The Walrus, or Rost-unger, is sometimes wasted here from Greenland on the ice.

SEALS.

BIRDS.

It cannot be expected, that many of the feathered tribe should inhabit an island so very severe in its climate, and so remote from the more southern continent and islands. It is, like all other Arctic countries, the afylum to water-fowl, to breed and educate their young; but, being an inhabited place, fewer refort here than to the untrodden wastes of the more diffant north. The GULAND DUCK may possibly be a local bird. The rest, whether land or water, are common to Norway, and many other parts of Europe. The GREAT AUKS, are found here in greater numbers than elsewhere: they inhabit and breed on the rocks, called from them Geir-fugl Skier, off the point of Rækenes, the most southern part of the island. Notwithstanding they are surrounded with a swelling sea, and tremendous breakers, the Icelanders venture there annually, in order to collect the eggs, to contribute to the provision of the year. I can only reckon fixteen land-birds \*: twenty cloven-footed water-fowl; four with pinnated feet, and forty-three with webbed feet, natives or frequenters of the island. I have omitted, in the Zoological part, the LESSER GUILLE-MOT, Br. Zool. ii. No 235, which is a native of Iceland, and called there Ringuia. It ought to have had a place in an appendage to the Guillemots, p. 517 of the first edition.

The Raven holds the first rank among the land-birds in the Scandinavian mythology. We see the use made of them by the chieftain Floke. The Bards, in their songs, give them the classical attribute of the power of presage. Thus they make Thromundr and Thorbiorn, before a seudal battle, explain the foreboding voice of this bird, and its interest in the sield of battle †.

\* Sea Eagle,
Cinereous Eagle,
Iceland Falcon,
Gyrfalcon,
Lanner,
Short-ear'd Owl || ?

Raven,
White Grous,
Hazel Grous?
Stare,
Red-wing Thrush,

Leffer Field-Lark,
Snow Bunting,
White Wagtail,
Wheat-ear,
Wren,

All described in the Zoological part.

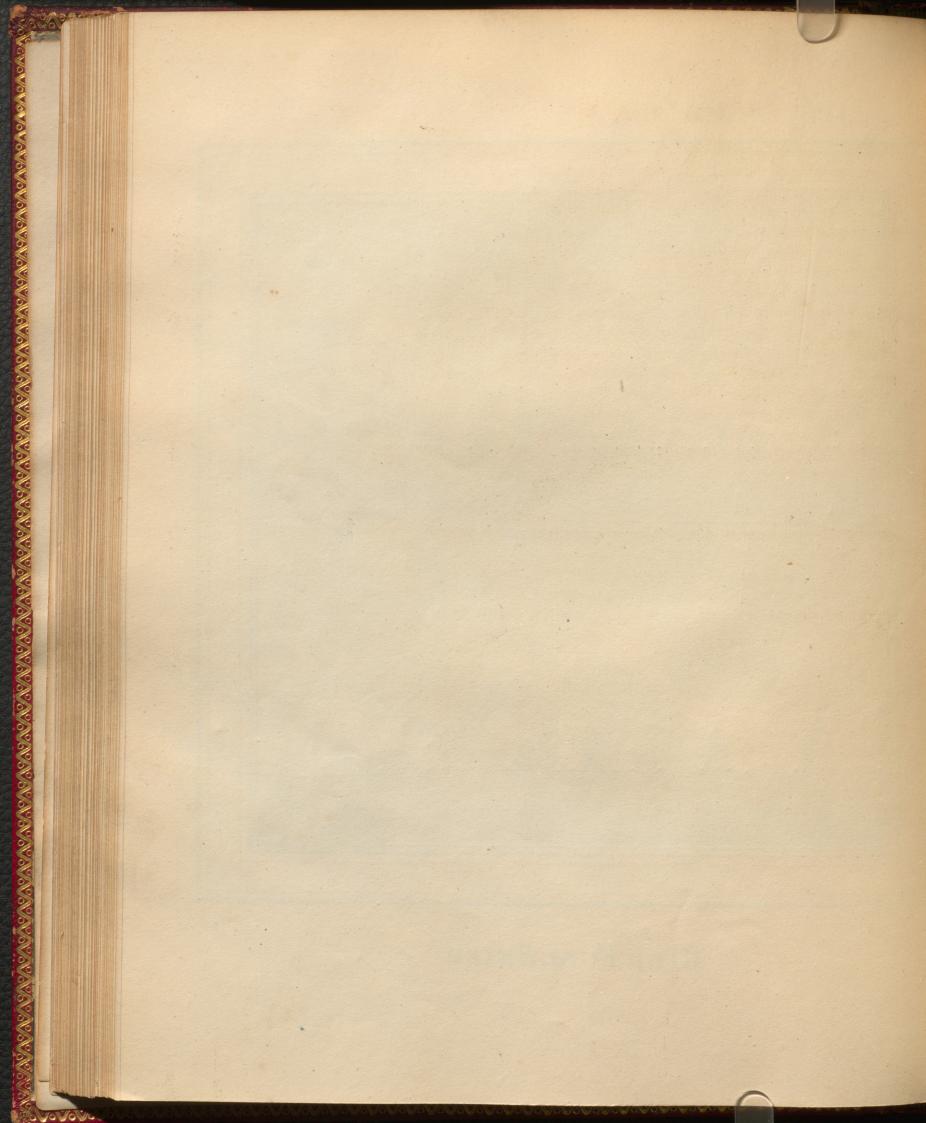
+ Island's Landnamabok, 172.

| Olaffen, ii. tab. xlvi. gives the figure of an Owl refembling this species.

THR. Hark!



GIER FUGL SKIER



THR.

Hark! the Raven's croak I hear, Lo! the bird of Fate is near. In the dawn, with dusky wings, Hoarse the song of death she sings.

Thus in days of yore she fang,
When the din of battle rang;
When the hour of death drew nigh,
And mighty chiefs were doom'd to die.

THOR.

The Raven croaks: the warriors flain, With blood her dufky wings diffain; Tir'd her morning prey she seeks, And with blood and carnage reeks.

Thus, perch'd upon an aged oak, The boding bird was heard to croak; When all the plain with blood was spread, Thirsting for the mighty dead.

R. W.

The Raven had still higher honors in the northern nations. It was sacred to Odin, the hero and god of the north. On the sacred stag of the Danes was embroidered this bird. Odin was said to have been always attended by two, which sate on his shoulders; whence he was called the God of Ravens: one was styled Huginn, or Thought; the other Muninn, or Memory. They whispered in his ear all they saw or heard. In the earliest dawn, he sent them to sty round the world, and they returned before dinner, fraught with intelligence. Odin thus sang their importance:

Huginn and Muninn, my delight!

Speed thro' the world their daily flight:
From their fond lord they both are flown,
Perhaps eternally are gone.

Tho' Huginn's loss I should deplore
Yet Muninn's would afflict me more \*.

R.W.

I have already spoken of the excellent Falcons of this island: let me add, that Falcons were among the animals sacrificed to Odin †, being birds of the first courage, and which delighted in blood.

The fea which furrounds *Iceland* is faid to be more falt than usual in other countries. It leaves great faline incrustations on the rocks, which

SEA.

<sup>\*</sup> Bartholinus de Causis contemptæ Mortis, &c. 429.

the natives scrape off and use. I can, with no certainty, give the depth of the water, except where Mr. Kerguelin founded, ten leagues to the west of Geir-fugl Skier, where he found it to be two hundred and five fathoms \*. The equinoctial tides rife as high as fixteen feet: the ordinary tides twelve †. The coasts almost universally bold, those of the inlets excepted, where there appears a small strand.

BAYS FROZEN.

The bays, especially those of the fouth, which lie under the influence of the cold of Greenland, are annually frozen over; that of Patrixford was thut up even as late as the 14th of May 1: but the fea near the coasts never feels the influence of the frost. It is in those places deep, and agitated by a most turbulent motion. The dreaded ice is what floats from FLOATING ICE. Greenland and Spitzbergen, and often fills, during the whole fummer, the ffreight between the former and this island |, and even extends along the northern coast, covering the sea to a vast distance from land. It consists of the two species, the mountanous ice, called Fiæl-jakar; and the smooth ice of inconsiderable thickness, styled Hellu-is. These arrive generally in January, and go away in March. Sometimes it does not touch the land till April, when it fixes for a confiderable time, and brings to the Icelanders the most tremendous evils; a multitude of polar bears, which spread their ravages far and wide among the cattle; and a cold of incredible violence, which chills the air for many miles, and even causes the horses and sheep to drop down dead §. To this is attributed the stunted state of the miserable woods of the country; which cause must have existed from the commencement of its iron age; for there feems to have been a period in which there had been confiderable wooded tracts ¶.

> The bottom of the fea is probably rocky; for it abounds with greater variety of fuci than Great Britain, which give shelter to fishes innumerable; a fource of wealth to the natives (were they permitted the free use) as they are of food to distant nations, the vessels of which annually refort here to fish, but without any commerce with the Icelanders, which is strictly

prohibited.

Voyage au Mer du Nord, 69. 1 Kerguelin, 31. + Horrebow, 101. # Troill, 48, 49. § Kerguelin, 20, 175. I See p. xlv.

prohibited. In 1767, three hundred Dutch, and above eighty French doggers, of about a hundred tons each, were employed, those of each nation under the orders and protection of a frigate. They keep from four to fix leagues from shore, and fish with hooks baited commonly with large mussels, in forty or fifty fathoms water. Others go to the distance of sisteen leagues, and sish in the depth of a hundred fathoms. The great capture is Cod. As soon as the sishermen take one, they cut off the head, wash, gut, and salt it in casks, with either rock-salt or that of Liston. The sishery commences in March, and ends in September. It begins at the point of Brederwick, and extends round the North Cape, by the isle of Grim, to the point of Langeness.

The English till of late years had entirely deserted this fishery, since they were in possession of Newfoundland. It had been, in very early times, the refort of our veffels, as is evident by the proclamation of Henry V. in order to give fatisfaction for the ill conduct of some of his subjects, in 1415, on the coasts of this island \*, in which he forbids them to refort to the isles of Denmark and Norway, especially to Iceland, otherwise than had been antiently customary. In 1429, the English parlement enforced this order, by making it penal for any of our subjects to trade in the Danish ports, except in North Earn or Bergen. At length, the Danish monarch wifely refolved to referve the benefits of the fisheries to his own subjects; and in 1465 made it capital for any Englishman to trade in the ports of Iceland +. Even those of Helgeland and Finmark were thut against them, unless they were driven in by a storm. I imagine that this severity must have arisen from some glaring insolence of our countrymen. But the antient treaties were revived, which were renewable by a fresh grant every feven years ‡. In later times, even Queen Elizabeth deigned to ask leave of Christian IV. to fish in those seas; but afterwards instructed her ambaffador to infift on the right of a free and universal fishery. The answer does not appear: but in the reign of her fuccessor, we had not fewer than a hundred and fifty veffels employed in this fishery. Possibly we might

<sup>\*</sup> Rymer's Fad. ix. 322. † Ibid. xvi. 443. † Ibid. xv. 443.

comply with the regulations infifted on by the king of Denmark; or perhaps a greater indulgence was given, by reason of the marriage of James with his fifter Anne. I observe, that the Danish prince excepts the port of Westmony, it being reserved for the peculiar supply of the royal court \*.

There is at present a revival of the cod fishery on the coast of Iceland, from our kingdom. About a dozen vessels have of late sailed from the isse of Thanet, Yarmouth, and a few from other parts of Great Britain. They are either sloops or brigs, from sifty to eighty tons burden. A lugsail boat, such as is used in the herring sishery, was thus equipped:—The crew consisted of sive men from the town, and sive more were taken in at the Orknies. They had twelve lines, of a hundred and twenty sathoms each, and two or three hundred hooks; six heading knives, twelve gutting, and twelve splitting knives. They take in eighteen tons of salt at Leith, at the rate of three tons to every thousand sish, of which six or seven thousand is a load for a vessel of this kind. They go to sea about the middle of April; return by the Orknies, to land the men; and get into their port in the latter end of August, or beginning of September.

The oppressed natives sish in the bays in boats, containing one, and never more than sour men. If they venture to sea, which they seldom do to above eight miles distance, they have larger boats, manned with twelve or sixteen hands; in these they slave for the benefit of the monopolists, to whom they are compelled to sell their sish at a trisling price. How weak must be the seelings of that government which can add misery to misery; and not attempt rather to bestow comforts on subjects condemned to such a dreadful abode!

The species of fish in these seas are sew; but the multitudes, under several of the most useful kinds, are amazing; those of Cod in particular. Herrings pass by this island in their annual migrations from the north, and for a short space sill every bay. Poverty and want of salt make these riches of other nations a tantalizing appearance to the unfortunate natives.

<sup>·</sup> Cambden's Life of Queen Elizabeth, in the Complete Hist. of England, ii. 550.



ISLES WESTERMAN.



A STRAUMNES.

Voyage de Verdum.

This is the most northern place in which the Herring is seen: they are not found in the shallow water of Spitzbergen; neither is it probable that they double Greenland, and retire to the frozen ocean, equally wanting in depth of water; -are they not rather lost in the vast profundity of these very VAST DEPTHS OF feas, in the depth of fix hundred and eighty-three fathoms, in lat. 65, between this island and the north of Norway; or in the unfathomable depths a little farther north, where the water was found bottomless with feven hundred and eighty fathoms \*? The other fishes of Iceland are in general common to Greenland: my remarks respecting them shall be deferred till I treat of that icy region.

WATER.

In order to view the correspondent shores of the tract I have passed over, I shall return to the streights of Dover. Calais is seated in a low wet tract; and the whole coast, from thence to the extremity of Holland, is fandy, and fronted with fand-hills; providentially highest in that lowest of countries, in which the strongest protection against the fury of the sea is necessary. The coast of Flanders, the rich bait of ambition, stained with SAND-BANKS OFF blood, is dangerous by reason of frequent narrow fand-banks, disposed in parallel rows, according to the direction of the land. The coasts of Holland are also greatly infested with sands; but between them and the land is a clear channel. From between Dunkirk and Calais, even to the Scar, at the extremity of Jutland, is low land, not to be seen but at a small distance, unless at Camperden in Holland; Heilegeland, off the mouths of the Elbe and Weser; and Robsnout, and Hartshall, in Jutland. While the opposite coasts of England are comparatively high, and the channel deep, these are univerfally obstructed with fand: the great German rivers bring down by their floods amazing quantities of fand and mud, the course of which is impeded at fea by the violence of the winds, blowing at fouth and west twothirds of the year +. These, with the help of the tides, arrest the progress of the fand into the open fea, and form the numerous banks which, fatal as

STREIGHTS OF DOVER.

FLANDERS AND HOLLAND.

<sup>+</sup> Yarranton's England's Im-\* Lord Mulgrave's Voyage towards the North Pole. provement, 4, 5.

## FLANDERS AND HOLLAND.

they may be to mariners, are the fecurity of Holland, in particular, from naval invalions.

TIDES.

The spring-tides at Calais rise twenty seet; at the pier head at Dover, to twenty-five; the cause of the variation is supposed, by Mr. Cowley, to be the different distances of the two piers from low-water mark, the first being half a mile, the last only a hundred yards; at Ostend it rises to eighteen; at Flushing, sixteen and a half; at Helvoetsluys and the Texel, twelve; and on the coasts of Holstein and Jutland, where the sea expands to a more considerable breadth, the tides grow more irregular, and weaken both in height and strength; at the Elbe they do not exceed seven or eight seet; on the coast of Jutland only two or three; a singular phænomenon, as they are so greatly higher on the correspondent coasts of England. The slood on the west coast of Holland sets to the northward, contrary to the course of the tides on the east coasts of England and Scotland.

ANTIENT FLAN-DERS AND HOL-LAND.

Flanders and Brabant formed part of the Gallia Belgica of Cefar, and Holland the Batavorum Insula. The rivers are the Scaldis, Mosa, and Rbenus, the modern Scheld, Maese, and Rhine. The two first probably do not vary greatly in their discharge into the sea: the last has experienced a most confiderable change. The right branch of this river runs, for some space, as it did in antient times, when it formed the lake Flevo, then refumed the form of a stream, and discharged itself into the sea at a place still called the Flie-stroom, between the isles of Flie-landt and Schelling, at the mouth of the Zuyder-zee. Long after that period the country was dry, firm, and well inhabited; a mighty inundation totally changed the face of it, and enlarged the Flevo lacus into the present Zuyder-zee, and broke the coast into the chain of islands which now front the shore, even as far as the mouth of the Weser. The Dutch historians date this accident in 1421: it seems to have been the operation of a length of time; for the passage through the Texel was forced open in 1400, and gave rife to the prosperity of Amsterdam\*. This country was first peopled by the Catti, a German nation; these were thinned almost to extirpation by the swarms from the great

\* Anderson's Diet. i. 225.

northern

northern hive, in their expeditions by land to other parts of Europe. For a very long space Flanders and Holland were a seat of banditti: the vast forest of Ardennes gave protection to them in one country; the morasses fecured them in the other. Government at length took place, in Holland under its counts, in Flanders under its foresters. These provinces fell at last under the dominion of the dukes of Burgundy; from them to the house of Austria and crown of Spain. The revolutions from that are well known. Holland received its fecond population from Germany, happily (for a country whose existence depends on industry) a most industrious race. The Rhine annually brings down multitudes of people, to repair the loss of men occasioned by distant voyages, and by the most unwholesome colonies in the East and West Indies. Holland is, from its climate, unfavorable to the encrease of mankind: it cannot depend on itself for the reparation of the lofs of people, but must look elsewhere for supplies.

FLANDERS has many of the tame species of animals with Great Britain; but, from the nature of its coast, wants most of the water-fowl, a few cloven-footed birds excepted, which breed on fandy shores. Holland has still fewer quadrupeds and birds. Of the quadrupeds which we want, are a few BEAVERS in the Rhine and Maefe. The WOLF is common in Flanders, and is found in the parts of Holland bordering on Germany. Both countries have a few birds which never appear in Britain, except forced by the violence of weather or pursuit of some bird of prey.

The antient Germany next succeeds. Holland was a fort of neutral country, a retreat of the German Catti, and not Germany itself. As at present, the bordering parts were divided into petty flates. The rivers which derive their origin far up the country, are the Ems, the Wefer, and the Elb, the antient Amifius, Vifurgis, and Albis.

The coast of Embden is noted for the place on which commences the Turbor Fishe great turbot fishery, which supplies the market of our capital. It begins very early in April. The fish come to the ground from the north, and move progressively fourthward. Towards the latter end of April the fishermen lay their long lines on the coast of Holland; and towards the latter end of May they go on the Flemish coasts, and continue till the latter end

ANIMALS.

of August; about which time the turbots spread, and are caught almost half channel over. They extend even to our northern coasts, but not in numbers fufficient to encourage a stationary fishery. The Dutch draw from us large fums, honorably indeed; but the produce of their fisheries is in the hands of a few of our falefmen, who by help of what are called storeboats, which lie in the falt water off Gravesend, bring up to the London market just the quantity of the fish which they judge will be wanted; and by those means keep up the price, to the great injury of both rich and poor: the rest is suffered to be spoiled; and what might fill the hungry is flung over-board by the cruel monopolizers. Most of the plaise fold in the metropolis are also bought from the Dutch. It is customary for our people to purchase these fish at sea: but the Dutch themselves bring the turbots to Gravefend. It is computed that they annually import about eighty thousand in the season, which continues from April to August. The fish with which the market is supplied from November to March, is conveyed by land from Bath and Bristol. This may be hereafter treated of. The Dutch employ in their fishery about fifty vessels, at an average burden of fixty tons. Had the act for taxing the tonnage of these vessels past, it would have amounted to an exclusion. There is great reason to believe that our own coasts would not have furnished turbots sufficient to answer the demands of the luxury of the times; the markets would have been worse supplied; and the power of monopolizing increased manyfold, by lessening the number of fishermen. Those of Great Britain have every fea, in which they may by the law of nations fish, open to them. The proper bait may be purchased at home; and, provided we have sufficient quantity of fish on our coasts, and exert ourselves with the œconomy and industry of the Dutch, we need never fear being rivalled by them.

The bait for these sish is the lesser lamprey of the Br. Zool. vol. iii. N° 2; the petromyzon fluviatilis of Linnæus. This is a small sish, yet of great importance; it is taken in amazing quantities between Battersea Reach and Taplow mills, a space of about sisty miles, and sold to the Dutch for the cod and other sisheries: 400,000 have been sold in one season for the purpose. The price has been forty shillings the thousand; this year

the

the Dutch have given three pounds, and the English from five to eight pounds; the former having prudently contracted for three years at a certain price. Formerly the Thames has furnished from a million to twelve hundred thousand annually. An attempt was lately made in parlement to fling the turbot fishery entirely into British hands, by laying ten shillings a ton duty on every foreign veffel importing turbot into Great Britain: but the plan was found to be derived from selfish motives, and even on a national injustice; the far greater quantity of turbots being discovered to be taken on the coasts of Holland and Flanders, from whence the Dutch are supposed to import annually to the London markets about 80,000 fish.

Opposite to the mouth of the estuary of the Weser and the Elb, is the INSULA SACRAS remnant of the Infula, Castum Nemus, celebrated by Tacitus, with his usual elegance, for the worship of HERTHUM, or MOTHER Earth, by the neighboring nations. Est in insula oceani, Castum Nemus, dicatum in eo vebiculum veste contectum, attingere uni sacerdoti concessum. Is adesse penetrali DEAM intelligit, vectamque bubus feminis multa cum veneratione prosequitur. Læti tunc dies, festa loca, quæcumque adventu hospitioque dignatur. Non bella ineunt, non arma sumunt, clausum omne ferrum. Pax et quies tunc tantum nota, tunc tantum amata, donec idem sacerdos satiatam conversatione mortalium Deam templo reddat. Mox vehiculum et vestes, et, si credere velis, numen ipsum, secreto lacu abluitur. Servi ministrant, quos statim idem lacus baurit. Arcanus binc terror, sanctaque ignorantia, quid st illud quod tantum perituri vident \*. The worship was continued very long after that period, and the island was distinguished by the name of Fostaland, Farria, Insula Sacra, or Heilgeland, or the Holy isle, from the facrifices made there to the goddess Fosta, or Foseta, the same with Vesta, Herthum, or the EARTH. She was called by the Scandinavians, Goya. The victims to her were precipitated into a pit: if they funk at once, the facrifice was thought to be accepted: the reverse if they swam any time on the furface +. This island was visited, out of respect to the goddess, by

HEILGELAND.

\* De Mor. German. c. 40.

+ Mallet's North. Antiq. Transl. i. 136.

M

people

people of high rank. Radbothus I. king of the Frisans, was here in 690, when Winbertus, and other Christian missionaries, landed, overthrew the temples, and put an end to the pagan rites\*. It had been an island of great extent; but by different inundations, between the years 800 and 1649, was reduced to its present contemptible size †. The great island of Nordstrandt (one of the Insulæ Saxonum) not remote from this, in 1634 was reduced, by the same cause, from twenty parishes to one: sifty thousand head of cattle, and between six and seven thousand souls, were swept away. Such are the calamities to which these low countries are liable.

TUTLAND.

Jutland and Holstein, the antient Cimbrica Chersonesus ‡, and Cartris §, terminating in the low point called the Skagen, or Scaw, stretches out in form of a peninsula, bounded by the North sea and the Kattegatte, the oblique approach into the Baltic. It is a very narrow tract, and only the resting-place of birds in their way from Scandinavia, and the farther north, the residence of numerous species. The rich marshes, in a climate mild from its situation between two seas, afford numbers of wholesome plants, the food of a remarkably fine breed of cattle. Besides the home consumption, these provinces send out annually thirty-two thousand head. The nobility do not think it beneath them to preside over the dairy: and their number of cows is princely. M. De Rantzau had not sewer than six hundred milch cows.

What the extent of this country might have been in very early times is unknown: it must have been prodigiously great, otherwise it never could have poured out that amazing number of people it did, in their eruption into France, when they were deseated by Marius, in 101 before Christ. Their army was computed to consist of three hundred thousand fighting men (including the Teutoni) besides women and children. About seven years before, they had suffered a great calamity from an inundation of the sea, which had destroyed great part of their country; and compelled the survivors, then crouded in the narrow Chersonesus, to apply to the

CIMBRIAN DELUGE.

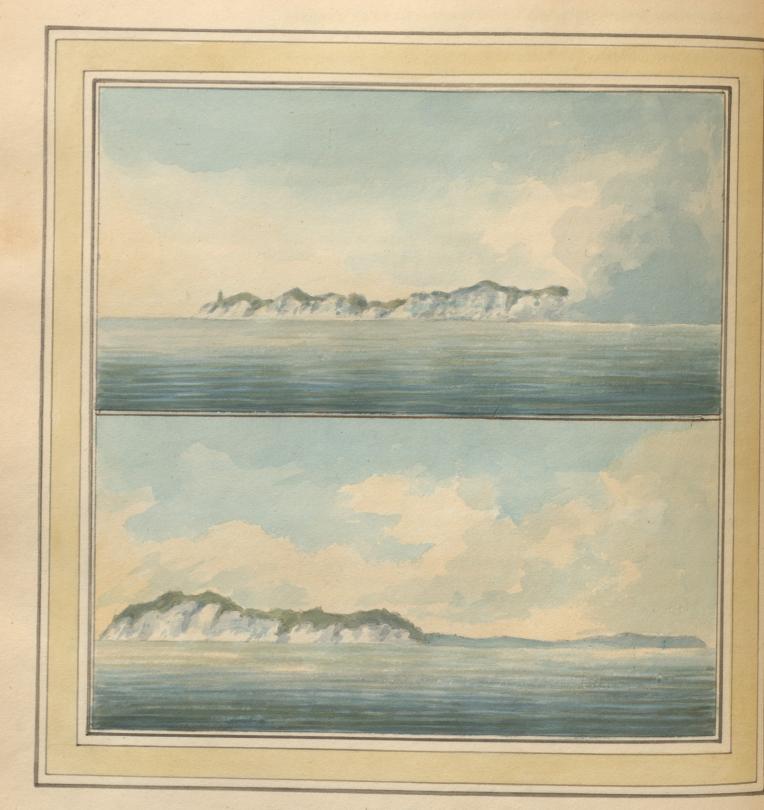
Romans

<sup>\*</sup> Emmii Hift. Rer. Friz. 129. ed Franck. † Busching Geogr. i. 157. 167.

† Ptolem. lib. ii. c. 11. § Plin. Nat. Hist. lib. iv. c. 13.



SCAW and ROBSNOUT.



ROUL.

Romans for other lands. Tacitus speaks of the vestiges of this once mighty people, in the lines, visible in his time, on each shore. I presume that the inundations to which this coast is subject from the sea, hath utterly destroyed every trace of them. The charts plainly point out their overwhelmed territories in Juts-riff, and the neighboring fand-banks. The first might have been the continuation of land from the end of futland, beginning at the Skaw, and running out into the North sca in form of a fcythe, not very remote from land, and terminating a little fouth of Bergen in Norway, leaving between its banks and that kingdom a deeper channel into the Baltic.

The Cimbrium Promontorium is believed by the Swedish antiquaries \* to CIMBRIUM PRObe the promontory Kullen in Schonen, a little to the north-west of the Sound. Kullen, and the point of Toreko to the north of it, forms a fine and deep bay quite in the neighborhood of the Sinus Codanus.

The Kattegatte lies between part of Jutland and the coast of Sweden; the last covered with isles innumerable. It is almost closed at the extremity, by the low Danish islands of Seland and Funen, which had in old times been (with Sweden) the feat of the Suiones. Between the first and the coast of Sweden, is the famous Sound, the passage tributary to the Danes by thousands of ships. The narrowest part is three miles broad, between Helfinour in Denmark and Helfingbourg in Sweden: on the Danish fide is ten or eleven fathom of water, on the Swedish twenty. The revenue it brings to the Danes is a hundred thousand pounds annually. The isle of Seland is fandy and low: the opposite coasts high and rocky. Copenbagen, a city of eighty thousand inhabitants, stands in that island on an edge of the Sound. Many of the streets have canals, which bring merchandise to the very doors; and the city is divided by the harbour into two unequal parts. These isles were of old called Codonania +, and gave to the Kattegatte the name of Sinus Codanus. The proper Baltic feems to have been the Mare Suevicum of the antients; and the farthest part, the

MONTORIUM.

THE SOUND.

\* Mr. Retzius. See this bay in Lous's Kaart over Kattegattet. + Mela, lib. iii. c. 3. 8.

LXXXIV

Mare Sarmaticum, and part of the Mare Scythicum. As a nauralist, I must mention, that when Linnæus speaks of the Mare Occidentale, he intends the Kattegatte. Its greatest depth is thirty-five fathoms. It decreases as it approaches the Sound; which begins with sixteen fathoms, and near Copenhagen shallows to even four, but has a much greater depth on the Swedish side.

VOYAGE OF THE ROMAN FLEET.

The Roman fleet, under the command of Germanicus, failed, according to Pliny, round Germany, and even doubled the Cimbricum Promontorium, and arrived at the islands which fill the bottom of the Kattegatte\*: either by observation or information, the Romans were acquainted with twenty-three. One they called Gleffaria, from its amber, a foffil abundant to this day on part of the fouth fide of the Baltic. A Roman knight was employed by Nero's master of the gladiators, to collect, in these parts, that precious production, by which he came perfectly acquainted with this country †. I cannot suppose that the Romans ever settled in any part of the neighborhood, yet there was some commerce between them, either direct, or by the intervention of merchants. Many filver coins have been found at Kivikke, in Schonen in Sweden, of Hadrian, Antoninus Pius, Commodus, and Albinus t. Among the islands, Pliny makes Norway one, under the name of Scandinavia incompertæ magnitudinis, and Baltia another, immensa magnitudinis, probably part of the same, and which might give name to the Sounds called the Belts, and to the Baltic itself. The geographer Mela had the justest information of this great water, which he describes with great elegance. 'Hac re mare (CODANUS SINUS) ' quod gremio mare accipitur, nunquam late patet, nec usquam MARI SIMILE · verum aquis passim interfluentibus ac sæpe transgressis vagum atque disfusum ' facie amnium spargitur, qua littora attingit, ripis contentum insularum non ' longe distantibus, et ubique pæne tantundem, it angustum et par freto ' curvansque se subitò, longo supercilio inflexum est.' The different nations

TEE BALTIC A

I would, like Mela, prefer giving to the Baltic the name of a gulph rather than a fea; for it wants many requisites to merit that title. It

<sup>\*</sup> Plin. lib. ii. c. 67. lib. iv. c. 13. † Lib. xxxvii. c. 3. † Forffenius de Monum. Kiwikense, p. 27.

wants depth, having in no one place more than a hundred and ten fathoms. From the eastern mouth of the Sound to the isle of Bornbolm it has from nine to thirty: from thence to Stockholm, from fifteen to fifty: and a little fouth of Lindo, fixty. It has in this course many fand-banks, but all in great depths of water. Between Alands Haff, amidst the great archipelago, the Aland isles, and the isle of Osel in the gulph of Riga, the depths are various, from fixty to a hundred and ten \*. Many fresh-water lakes exceed it in that respect.

It wants tides, therefore experiences no difference of height, except when the winds are violent. At fuch times there is a current in and out of the Baltic, according to the points they blow from; which forces the water through the Sound with the velocity of two or three Danish miles in the hour. When the wind blows violently from the German sea, the water rifes in the feveral Baltic harbours, and gives those in the western part a temporary faltness: otherwise the Baltic loses that other property of a fea, by reason of the want of tide, and the quantity of vast rivers it receives, which sweeten it so much as to render it, in many places, fit for domestic uses. In all the Baltic, Linnaus enumerates but three fucit, plants of the fea: in the gulph of Bothnia, which is beyond the reach of falt water, not one 1.

In the present century it has been proved by experiment, that the Baltic has an under current like the Streights of Gibraltar. An able feaman belonging to one of our frigates went in a pinnace to the middle of the channel, and was violently hurried away by a current. Soon after he funk a bucket, with a large ball in it, to a certain depth, which gave a check to the boat's motion, and finking it still lower and lower, was driven a-head to windward against the upper stream, which had been forced through the Sound by some strong gale. The current aloft was not above four or five feet deep; and the lower the bucket was funk, they found the under current the stronger |.

The fewness of species of fish in the Baltic is another difference be- FEW SPECIES OF

I Flora Lapp. + Flora Suec. Il James's \* Russian and other charts. History Gibraltar, i. 233. tween No TIDES.

DEPTH.

NOT SALT.

tween it and a genuine sea. I can enumerate only twenty\* which are found in this vast extent of water: and may add one cetaceous sish, the Porpesse. No others venture beyond the narrow streights which divide the Baltic from the Kattegatte; yet the great Swedish Faunist reckons eighty-seven belonging to his country, which is washed only by those two waters. Let me mention the Herring as a species which has from very early times enriched the neighboring cities. There was, between the years 1169 and 1203, a vast resort of Christian ships to sish off the isle of Rugen, the seat of the antient Rugii, insomuch that the Danes cloathed themselves with scarlet and purple, and sine linen.

They frequented the Livonian and Courland shores in equal multitudes till the year 1313, when they drew near those of Denmark +. They deferted the Baltic for some centuries, but in 1752 began again to make their appearance there on the Swedish coast, and are caught among the rocks and isles (none at sea) from Gottenbourg to Stromstad, a space of thirty-five leagues, and none further north or fouth. In the beginning of the fishery they appeared about the end of July, or the beginning of August, but have gradually, altered their season, and of late are seldom seen before the beginning of November: neither are they so fat as when they appeared early. In 1781, 136,649 barrels of falted herrings were exported to different ports of the Baltic and East sea, the Madeiras and West-Indies, and France and the Mediterranean; besides 14,542 barrels of herring oil: but the oil is of a very inferior quality to that of whale or liver oil. Formerly the Swedes fent great quantities of herrings to Cork, from whence they were reshipped to the West-Indies ‡. This part of the trade has entirely ceafed. Possibly these new sisheries may have operated

* Porpesse,	Striated Cod-fish,	Turbot,	Herring,
Sea Lamprey,	Viviparous Blenny,	Flounder,	Sprat,
Sturgeon,	Beardless Ophidion,	Salmon,	Little Pipe-fish,
Launce,	Lump,	Gar-fish,	Shorter P.
Sword-fish,	Hornsimpa,	Smelt,	Blind P.

I find that the Asinus Callarios is common to the Baltic and our seas, therefore must be added to the list of British fish.

<sup>†</sup> Anderson's Dict. Commerce, i. 102. 152.

Third Report of the Committee on the British Fisheries, p. 314.

with other causes to lessen those of Great Britain: but I am informed that these capricious fish begin already to appear in far less quantities than usual.

The Hornfimpa, or Cottus Quadricornis, Faun. Suec. Nº 321, and the Syngnathus Typhle, or Blind Pipe-fish, No 377, are unknown in the British seas: the first seems peculiar to the gulph of Bothnia, and is a fish of singular figure, with four flat hornlike processes on the head \*.

The extent of the Baltic in length is very great. From Helfingor, where it properly begins, to Cronstadt, at the end of the gulph of Finland, is eight hundred and ten English sea miles. Its breadth, between Saltwic, in Smaland, and the opposite shore, two hundred and thirty-seven. The gulph of Bothnia, which runs due north, forms an extent almost OF THE GULPH equal to the first, being, from Tornea in Lapland, to the shore near Dantzic, not less than seven hundred and seventy-eight: an amazing space, to be fo ill stocked with fishy inhabitants.

From the isle of Rugen, the course of the Baltic is strait and open, except where interrupted by the famous isle of Gottland, the place of rendezvous from whence the Goths made their naval excursions. In 811, on this island, was founded the famous town of Wisbuy +, the great emporium of the north: it was, for ages, the refort of every Christian nation. The English long traded here, before they ventured on the distant voyage of the Mediterranean. It became an independent city, and made its maritime laws the standard of all Europe to the north of Spain. In 1361, Waldemar III. of Denmark, attacked, ravaged, and plundered it of immense riches; all which perished at sea after they were shipped ‡. Its prefent inhabitants are husbandmen and fishermen, secure from the calamities of war by the happy want of exuberant wealth.

Beyond Stockholm the Baltic divides into the gulphs of Bothnia and Finland: the first runs deeply to the north, and the country is composed chiefly of granite rock, or strewed over with detached masses of the same. Its greatest breadth is between Geste, in Gastrickland, and Abo, in Finland, where it measures a hundred and fixty-two miles. The left breadth is

BREADTH OF THE BALTIC;

OF BOTHNIA.

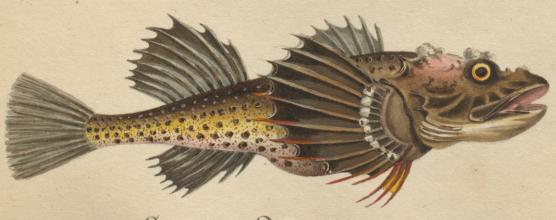
ISLE OF GOTT-LAND.



\* Muf. Fr. Adolph. i. 70. tab. xxxii. fig. 4.

+ Dalhberg, book iii. tab. 263.

1 Hift. Abrege de Nord. i. 206.



COTTUS QUADRICORNIS

at Aland haf, the mouth of the gulph, reckoning from Griselholm in Sweden to the usual landing-place, about forty English miles below Abo, where it is only twelve Swedish or seventy-two English miles broad. The depth in one place is superior to that of the Baltic, having been proved by sounding to be five hundred and eighty English feet \*.

LAPLAND.

At the extremity of the gulph of Bothnia is Lapland, a country divided by the river Tornea, which runs navigable far up between a continued mountanous forest. It is supposed to have been peopled in the eleventh century by the Finni: a fact not easy to be admitted; for the Finni, or Fennones, are a brawny race, with long yellow hair, and brown irides. The Laplanders are, on the contrary, small in body, have short black hair, and black irides. It is certain that a party of Fins deferted their native country, Finland, in the age before mentioned, rather than relinquish the brutality of heathenism. Their offspring remain converted, and in some measure reclamed, between Norway and Sweden t; but are a most distinct race from the Laplanders, who possessed their country long before. In the ninth century, the hero Regner slew its king or leader in battle ‡: at that period it was in a favage flate; nor was its conquest attempted by Sweden till 1277, when Waldemar added it to his kingdom, and in vain attempted its conversion §. Scarcely two centuries have elapsed fince it has fincerely embraced the doctrines of Christianity. In consequence of which, cultivation and civilization have so well fucceeded in the fouthern parts, that many deferts are peopled, moraffes drained, and the reason of the natives so greatly improved, that they have united with the Swedes, and even fent their reprefentatives to the House of Peasants in the national diet ||. But these were at all times the most cultivated of this distinct race. They trained the Rein-deer to the fledge, domesticated it from its wild flate, and made it the substitute for the cow.

BIRDS.

Their country, which penetrates even to the Northern ocean, confifts of favage mountains, woods, vast marshes, rivers, and lakes, the haunts of myriads of water-fowl, which resort here in summer to breed, free

<sup>\*</sup> Prof. Retzius of Lund. + Ph. Tr. Abr. vii. part iv. p. 44. ‡ Hift. Abrege du Nord. ii. 59. § The same, p. 3. || Anderson, ii. 419.

from the disturbance of mankind. Linnæus, the great explorer of these deserts, my venerated example! mentions them as exceeding in numbers the armies of Xerxes; re-migrating, with him, in autumn, eight entire days and nights, to seek sustenance on the shores and waters of more favorable climates \*.

Their lakes and rivers abound in fish; yet the number of species are few. These are the Ten-spined Stickle-back, Br. Zool. iii. N° 130; Salmon, N° 143, in great abundance, which force their way to the very heads of the surious rivers of Tornea and Kiemi, to deposit their spawn; Char, N° 149, are found in the lakes in great abundance; and Graylings, N° 150, in the rivers; Gwiniads, N° 152, are taken of eight or ten pounds weight; Pikes, N° 153, sometimes eight feet long; and Perch, N° 124, of an incredible size †; and the Salmo Albula, Faun. Suec. N° 353, closes the list of those of the Lapland lakes and rivers.

But Sweden exceeds us in the number of fresh-water fishes. Besides those it has in common with Great Britain, it has,

The lesser Lamprey, the Pride Lamprey, Eel, Barbot, Bull-head, Russe, three-spined and ten-spined Sticklebacks, Loche, and the Cobitis tania lately discovered in the Trent; the Trout, Char, Grayling, Gwiniad, Pike (this fish has been taken in the Wetter lake of the weight of sixty pounds: there is a tradition that once there was one taken of the weight of a hundred and thirty pounds); Carp, Tench, Bream, Crucian, Rud, Roach, and the Bleak, all which are described in the British Zoology. Sweden has besides,

The Sterlet, or acipenser ruthenus, BLOCHE iii. 88. transported from the Volga into the lake Mæler, by Frederic I; as was the Loche, Cobitis Barbatula, out of Germany, by the same monarch.

Blennius raninus or Ablkussa. Faun. Suec. Nº 316.

Perca Lucio-perca or Gioes, BLOCHE ii. 58.

Cobitis fossilis, BLOCHE i. 173.

Silurus glanis, BLOCHE i. 194, or Mahl, the greatest of fresh-water fishes.

\* Aman. Acad. iv. 570. Fl. Lap. 273.

+ Scheffer's Lapland.

Salmo

FISH.

Salmo nimba.

S. Albula, or Sucklæja, BLOCHE i. 141.

Cyprinus Aspius, or Asp, BLOCHE i. 41.

C. Idus, or Id, BLOCHE i. 202.

C. Ballerus, or Blicka, BLOCHE i. 53.

C. Grislagine, or Staem, BLOCHE.

C. Wimba, BLOCHE i. 31.

C. Idbarus.

C. Farenus, or Faren.

C. Cultratus, or Skierknif, BLOCHE i. 204.

C. Bjorkna.

C. Aphya, or Mud, BLOCHE iii. 121.

Sweden wants our Samlet, Barbel, Gudgeon, Chub, Graining, or Cyprins Dobula, BLOCHE i. 36, and Minow. The Carp is a naturalised fish, and frequently brought alive into Sweden out of Germany.

In reptiles, the same country, unenvied, exceeds us in numbers of species. Of those unknown in Britain, is the rana rubeta, esculenta, and artorea. And that dreadful species of snake, the coluber chersea, the Aspmg of the Swedes; a small species, which, like the Prester of Lucan, kills by a horrible swelling of the whole human frame. Its bite is almost incurable: yet in a few instances, the juice of the leaves of the ash, used internally and externally, has been found efficacious\*. This satal speces is found only in Smoland amidst the willows.

ALAND ISLES.

The mouth of the gulph of Bothnia is filled with a prodigious cluster of little islands and rocks, dangerous to mariners. Aland is the chief, an island of surprising rockiness, and with all the other aspects as if tern from the continent by some mighty convulsion. In this northern Archipelago, only junipers and other shrubs will grow. During winter it forms the most singular passage in the world. The traveller from Sweden to Finland sinds an uncommon variety: in parts, a vast expanse of ice, sometimes as smooth as a mirrour: at other times amidst frozen waves, according to the state in which the frost had arrested the water. When he

\* Mr. Oedman.

reaches

reaches Aland, he finds a long extent of land and granite; he muses in the midst on Castlebolm, the sad prison of the unfortunate Eric XIV, who had proposed himself the husband of our great Elizabeth. The rest of the way is a succession of road over island and ice, amidst the grotesque appearance of granite rock, appearing above the frost-bound water on every side, and the oddness of the road still heightened by a sky quite crimson with the aurora borealis.

The season of the freezing of the upper part of the Baltic is very uncertain, and equally so as to the duration and thickness of the ice. It rarely freezes about the Wermdoen isles, a little to the east of Stackholm, before January: but the bays which lie remotest from the sea, almost always before Christmas. About the isles of Aland, the water is frozen later, and the ice disappears later. In 1783, the sea was covered with ice on the 6th of January, and was free from ice on April 6th. It sometimes continues even till the middle of May. The persons who attend the sledges, which have such frequent occasion to pass this part of the Baltic, are obliged to be very exact in their remarks upon the ice. They say that when it is three Swedish inches thick, it will bear a man; when sour, a horse: when sive, a carriage. The greatest thickness is forty\*: the sledge-drivers never go without a hatchet to cut the ice, and an instrument to measure the thickness; as their safety depends on an accurate observation on that circumstance.

The gulph of Finland extends from thence due east, and has, on its northern coast, a chain of similar islands, and a few sprinkled over the channel. All the coast and all its isles are composed of red or grey grainite; and all the coasts of Sweden are the same, mixed in places with sand-stones. Finland and Carelia are the bounds of the gulph on this side: Livonia, the granary of the north, and Ingria, on the other. Finland, especially the middle parts, is most amazingly intersected with lakes and moors; it abounds with game, and, unluckily, with sastnesses for bears, of such sierceness, that in the year 1758 they destroyed, in the parish of Huitis

SEASON OF FREEZING.

GULPH OF FINLAND.

\* Mr. Oedman.

+ Mr. Coxe.

N 2

alone,

PETERSBURG.

PETER THE GREAT.

alone, not fewer than eight hundred and eighty-feven cattle! These countries, with Russia, made part of the European Scythia, or Sarmatia; and this part of the Baltic has been sometimes styled Mare Scythicum, and Mare Sarmaticum \*. The gulph decreases in depth from fixty to five fathoms, as you advance towards Cronstadt, the great naval arfenal of Russia. From thence are twelve miles of shallow water to Petersburg, seated in Lat. 59° 56' 23" north, that glorious creation of PETER the GREAT; the inlet of wealth and science into his vast dominions, before his time inacceffible to the rest of Europe, unless by the tedious voyage of the White sea; and a country unknown, but by the report of the splendid barbarism of its tyrants. Petersburg was founded by him, in the midst of a vast morafs, divided by the Neva and its branches. In 1703 here were only a few miserable huts. In less than nine years the seat of empire was transferred from the great city of Moscow to this late desolate spot. Above a hundred thousand lives were facrificed to this vast work; lost by excess labor, and the unwholesome air of the fen. It now contains a hundred and thirty thousand inhabitants. PETER was formed with a singular mixture of endowments for the purpose of civilizing a rude and barbarous people: his mind was pregnant with great designs, obstinate perseverance, and unrelenting feverity in the exertion of punishment on all who dared to oppose the execution of his system for the good of the whole. A mind filled with the milkiness of human nature, would never have been able to deal with the favage uninformed Russians. Peter hewed his work into shape: for the last polish, Heaven formed another CATHERINE, the admiration of Europe, the bleffing of an empire which forms at left one eleventh of the globe, extending from the northern point of Nova Zemlja, in the frozen latitude of near 78, to the influx of the Terek into the Caspian sea, in the warm latitude of about 43 and a half; or, to give it the shortest breadth, from the coast of the Frozen ocean, at the extremity of the country of the Tschutki, lat. 73, to the mouth of the Aimakan, in the gulph of Ochotz, in lat. 54. Its length is still more prodigious, from Petersburg as far as the Afiatic fide of the streights of Bering.

· Ptolemy.

A fine

A fine equestrian statue of this great legislator of Russia has lately been erected in Petersburg to his memory. He is represented on a spirited courser ascending a steep rock, in the action of bestowing his blessing on his people. The pedestal is a wonderful curiosity: a stupendous mass of moor-stone or granite, found half buried in a morass eight miles from the city. It weighed sisten hundred tons: the morass was drained, and it was brought through a road cut through a forest, with forty men on the top, four miles to the water-side, then it was conveyed in a vessel built on purpose down the Neva to the place of its destination \*.

In the following work, I have, by the affistance of that celebrated naturalist Doctor Pallas, given a description of the Quadrupeds and Birds of this vast empire, as far as was compatible wirh my plan, which was confined between the highest known latitudes of the northern hemisphere, and that of 60. The remainder will be comprehended in the great design formed by the Imperial Academy, and executed by professors whose glory it is to prove themselves worthy of their illustrious and munisicent patroness, under whose auspices they have pervaded every part of her extensive dominions in search of useful knowlege.

To Petersburg, this corner of the empire, is brought, as to a vast emporium, the commerce of the most distant parts; and from hence are circulated the European articles to supply even the remote China. The place of traffic is on the Chinese borders, at Kjackta, a town without women; for none are allowed to attend their husbands. By this route the furs of Hudson's-Bay find their way to warm the luxurious inhabitants of Pekin, the animals of the neighboring Tartary and Sibiria being inadequate to the increased demand. The want of a maritime intercourse is no obstacle to this enterprising nation to the carrying on a trade with India.

Since the beginning of the present century, about an hundred and fifty or two hundred *Indian* merchants, from the province of *Multan*, reside at *Astracan*, and carry on a great trade in precious stones; they live in a large stone *caravanserni*. As they die away, or incline to return home, a sup-

HIS STATUE.

ply is fent from India by their chief, selected from among their young unmarried relations. As they have no females from their own country, they keep, during their residence at Astracan, Tartarian women, but the contract is only during that time. They are a fine race of men, and are highly esteemed for the integrity of their dealings. These support the most important trade of Astracan, by carrying through Astrabad to the inland parts of the Mogol empire. I stray a little from my plan; but it may be excused on account of the novelty of the relation, and because it points out a more southern inland road than was known in the middle ages, when the merchants went by the way of Bochara and Samarcand to the northern cities of India, Candahar and Cabul.

SARMATÆ.

In my return to the German sea, let me review the antient inhabitants of the Baltic. The wandering Sarmatæ, of Scythian descent, possessed all the country from lake Onega to the Vistula; and part of the vast Hercynian forest, samous of old for its wild beasts, occupied most of this country. Bisons with their great manes: Uni with their enormous horns, which the natives bound with silver and quasted at their great seasts: the Alces, or Elk, then sabled to have jointless legs: and Wild Horses, were among the quadrupeds of this tract\*. I smile at the description of certain birds of the Hercynian wood, whose seathers shone in the night, and often proved the guide to the bewildered traveller †. The resplendent plumage of the Strix Nyctea, the Snowy Owl, might probably have struck the eye of the benighted wanderer, and given rise to the strange relation.

ENINGIA.

Eningia was the opposite shore, and the same with the modern Finland, inhabited by people of amazing savageness and squalid poverty; who lived by the chace, headed their arrows with bones, cloathed themselves with skins, lay on the ground, and had no other shelter for their infants than a few interwoven boughs ‡. They were then, what the people of Terra del Fuego are now. At this very time (Mr. Oedman informs me)

there

<sup>\*</sup> Cefar Bell. Gall. lib. iv. Plin. lib. viii. c. 15. + Solinus, c. 32. Plin. x. c. 47. † Tacitus de Mor. Germ.

there are above twenty districts, in the space between Swedish and Russian Finland, which own no master, live almost in a state of nature, and in the most deplorable manner torn by family quarrels, from the lawless state in which they live. There is no certainty respecting the Oonæ; islanders, who sed, as many do at present, on the eggs of wild sowl and on oats; but most probably they were the natives of the isles of Aland, and the adjacent archipelago; for Mela expressly places them opposite to the Sarmatæ\*. We may add, that the Hippopodæ and Panoti might be the inhabitants of the northern part of the Bothnian gulph; the first sabled to have hoofs like horses, the last ears so large as to serve instead of cloaks. The Hippopodæ were certainly the same fort of people as the Finni Lignipedes of Olaus, and the Skride Finnas of Obthere. They wore snow-shoes, which might sairly give the idea of their being, like horses, hoofed and shod. As to the Panoti, they basse my imagination.

The Bothnian and Finland gulphs feem to me to have been, in the time of Tacitus, part of his Mare pigrum ac immotum, which, with part of the Hyperborean ocean, really infulated Scandinavia, and which he places beyond the Suiones, or modern Sweden. Pliny gives, I suppose from the relation of British or other voyagers, to part of this sea, probably the most northern, the title of Morimarusa, or Dead Sea, and Cronium. The learned Forster, with great ingenuity, derives the word from the Gaelic and Celtic language +; the first, from the Welsh, mor, sea, and marw, dead; the other from the Irish, muir-croinn, the coagulated, i. e. congealed sea. Tacitus adds to his account, that it was believed to encircle the whole globe, and that the last light of the setting sun continued so very vivid as to obfcure the stars themselves. There is not a single circumstance of exaggeration in all this: every winter the gulph is frozen, and becomes motionless. Many instances may be adduced even of the Baltic itself being frozen from fhore to shore ‡. The stars are frequently lost in the amazing splendor and various colors of the aurora borealis. The Hilleviones, an antient people of Sweden, styled Scandinavia alterum orbem terrarum, and their descendants,

OONE.

HIPPOPODA.

\* Mela, lib. iii. c. viii.

+ Forster's Obs. 96.

‡ Forster's Obs. 80.

long

ANTIENT STRENGHTS BE-TWEEN

WHITE SEA.

long carolled the junction of the Bothnian gulph with the northern ocean, traditionally rehearfed in old Swedish songs. Tacitus uses the two last words to express the world furrounded by this sea. In the days of the geographer Mela, there certainly was a strong tide in this upper part of the Baltic; for, speaking of the islands off Finland, he says, " Quæ Sar-" matis adversa sunt, ob alternos accessus recursusque pelagi, et quod spa-" tia queis distant, modò operiuntur undis, modò nuda sunt; aliàs insulæ " videntur, aliàs una et continens terra." With propriety, therefore, in another place, does he compare it to a streight, par freto, notwithstanding he was ignorant of its other entrance. Doctor Pallas most justly ascribes the formation of not only the Baltic, but its former communication with the White Sea, to the effects of a deluge. The whole intermediate country is a proof; the foundation being what is called the old rock, and that covered with variety of matter; fuch as beds of pebble and gravel, and frag-THE BALTIC AND ments of granite, torn from the great mass. Parts of the channel which formed the infulation of Scandinavia, are the chain of lakes, from that of Ladoga to the White Sea, such as Onega, and others, often connected by rivers, and lying in a low country, filled with the proofs abovementioned. The lakes Sig, Onda, and Wigo, form successive links from the lake Onega to the White Sea; and the lake Saima almost cuts Finland thorough from north to fouth, beginning not far from lake Onda, and extending almost to Wybourg on the gulph of Finland, a space of forty Swedish or two hundred and fixty English miles. These were part of the bed of the streights through which the tide poured itself from the Hyperborean ocean, and covered, at its flux, the islands described by Mela. This, like the other northern feas, was annually frozen over, and could be no obstacle to the stocking of Scandinavia with quadrupeds. There is no fixing the period in which this passage was obstructed. An influx of fand, or an earthquake, might close it up. As foon as this event took place, the Baltic felt the want of its usual feed: it lost the property of a sea; and, by a constant exhalation, from that time decreased in the quantity of water. Modern philosophers have proved the great loss it has sustained, and that it decreases from forty to fifty inches in a century: that, near Pithea, Pithea, the gulph of Bothnia has retired from the land half a mile in forty-five years; and near Lulea, a mile in twenty-eight. Notwithstanding its present state, when we consider the accounts given by the antients, the old Swedish traditions, and the present vestiges of the former channel, we can, without any force of fancy, give full credit to the insulated form of Scandinavia, given in one of Cluverius's maps \*; which, he says, is drawn from the erroneous accounts of the antients.

The Suiones possessed the modern Sweden, and extended even to the ocean, and were a potent naval power. Their ships were so constructed, with prows at each end, that they were always ready to advance. These people, in after times, proved, under the common name of Nortmans, the pest and conquerors of great part of southern Europe; their skill in maritime affairs sitting them for distant expeditions. In the fixth century they were called Suethans, and were samous for their cavalry. In their time, the Sable was common in their country: Jornandes, therefore, observes, that notwithstanding they lived poorly, they were most richly cloathed: he also informs us, that they supplied the Romans with these precious surs, through the means of numbers of intervening nations † Scandinavia, in that period, had got the name of Scanzia; and as it was then called an island, and by Jornandes ‡, born of Gothic parents, there is all the reason to imagine, that the passage into the Hyperborean ocean was not in his time closed.

After repassing the Sound, appear Schonen, Halland, and Bohusland, Swedish provinces, bounded by the Kattegatte. Schonen, a level country totally destitute of wood, but abundant in excellent turs. Halland, from some similitude of sound, is supposed to have been the seat of the Hilleviones, a most populous nation; perhaps the same with the Suiones of Tacitus; for beyond them he places the Sitones, or the country of Norway, who were a great naval people; as the historian says that they differed not from the Suiones, except in being under a semale government. The pro-

SUIONES.

NORWAY.

† Jornandes de Reb.

0

montory

<sup>\*</sup> At the end of his second vol. of Germania Antiqua.

Geticis, c. iii. 

† The same, c. iv.

THE NAZE.

NORTMANS.

montory of the Naze, visible at eight or ten leagues distance, with the low land of Bevenbergen in Jutland, forms the entrance into the German fea, The Bommel, and the Drommel, high mountains to the east of it; and the highland of Left, a vast mountain, gradually rising from the shore, to the west, are noted guides to mariners. It is reasonably supposed, that Pliny intended this vast region by his island of Nerigon, from whence, fays he, was a paffage to Thule. He speaks also of Bergos, which, from agreement of found, is thought to be the present province of Bergen. The promontorium Rubeas is gueffed to be the North Cape, between which and the Cimbri, Philamon \* places the Mare Morimarusa, or the Dead Sea, so called from the clouded sky that usually reigned there.

Our first certain knowlege of the inhabitants of this country, was from

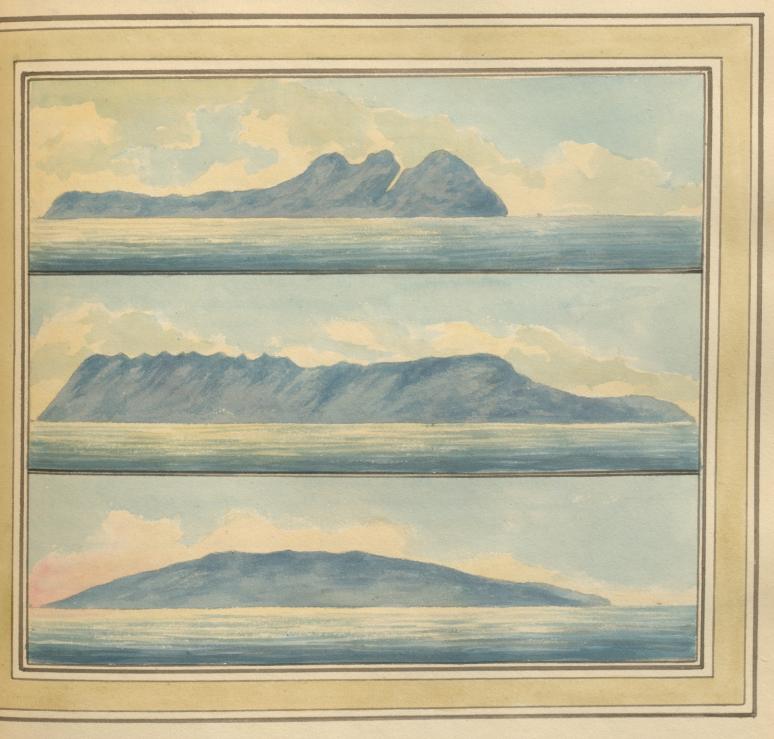
the desolation they brought on the southern nations by their piratical invalions. Their country had, before that period, the name of Nortmannaland, and the inhabitants Nortmans; a title which included other adjacent people. Great Britain and Ireland were ravaged by them in 845; and they continued their invasion till they effected the conquest of England, under their leader, Canute the Great. They went up the Seine as far as Paris, burnt the town, and forced its weak monarch to purchase their abfence at the price of fourteen thousand marks. They plundered Spain, and at length carried their excursions through the Mediterranean to Italy, and even into Sicily. They used narrow vessels, like their ancestors the Sitones; and, besides oars, added the improvement of two sails: and victualled them with falted provisions, biscuit, cheese, and beer. Their thips were at first small; but in after times they were large enough to hold a hundred or a hundred and twenty men. But the multitude of veffels was amazing. The fleet of Harold Blaatand confifted of feven hundred †. Ringo brought a fleet of two thousand five hundred ships against Harold

Hyldetand king of Denmark ‡. The ships of the chieftains were decorated in the most superb manner; we are told that the fails were enriched with

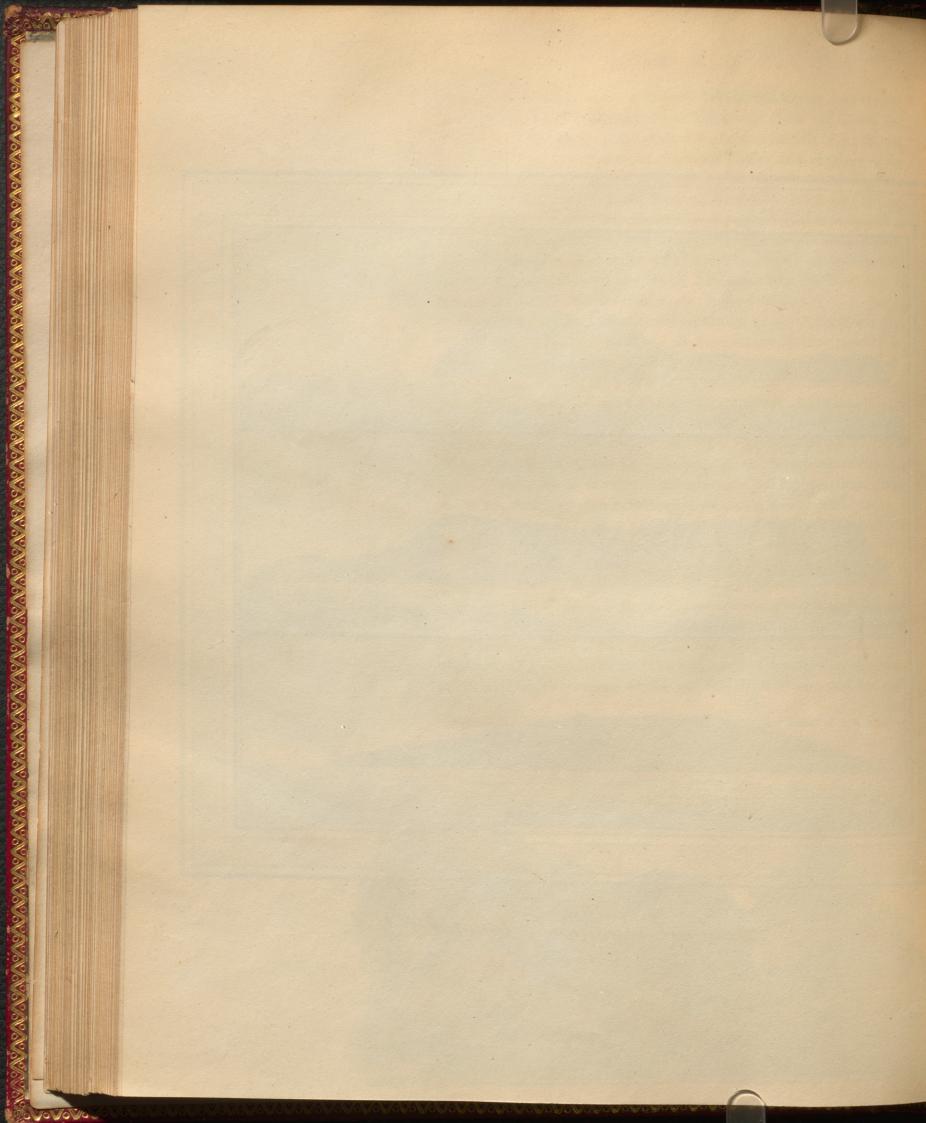
\* As quoted by Pliny, lib. iv. c. 13. + Mallet's Introd. i. 257. ‡ Sax. Gram. Hift. Dan. 109.



gold,



Drommel, Brommel, Higland of Last.



gold, the mast gilt, and the ropes purple \*. A hundred thousand of these savages have at once sallied from Scandinavia, so justly styled Officina Gentium, aut certè velut vagina nationum †. Probably necessity, more than ambition, caused them to discharge their country of its exuberant numbers. Multitudes were destroyed; but multitudes remained, and peopled more favorable climes.

Their king, Olaus, was a convert to Christianity in 994; Bernard, an Englishman, had the honor of baptizing him, when Olaus happened to touch at one of the Scilly islands. He plundered with great spirit during feveral years; and in 1006 received the crown of martyrdom from his pagan fubjects. But religious zeal first gave the rest of Europe a knowlege of their country, and the sweets of its commerce. The Hanse towns poured in their missionaries, and reaped a temporal harvest. By the year 1204, the merchants obtained from the wife prince Suer every encouragement to commerce; and by that means introduced wealth and civilization into his barren kingdom. England, by every method, cherished the advantages refulting from an intercourse with Norway; and Bergen was the emporium. Henry III. in 1217, entered into a league with its monarch Haquin, by which both princes stipulate for free access for their subjects into their respective kingdoms, free trade and security to their persons. In 1269, Henry entered into another treaty with Magnus, in which it was agreed, that no goods should be exported from either kingdom except they had been paid for; and there is besides a humane provision on both fides, for the fecurity of the persons and effects of the subjects who should fuffer shipwreck on their several coasts.

This country exhibits a most wonderful appearance of coast. It runs due north to Cape Staff, the western point of Sondmor, then winds northeast to its extremity at the North Cape. The extent (measuring along the shores) is three hundred Norwegian miles, or above fifteen hundred English; or in a direct line, as a bird slies, above a thousand English. High and precipitous rocks compose the front, with a sea generally from one to

COASTS.

SEA.

\* Sax. Gram. Hift. Dan. 145. + Jornandes, c. 4.

three

DYBRENDES.

three hundred fathoms deep washing their base \*. Multitudes of narrow creeks penetrate deep into the land, overshadowed by stupendous mountains. The sides of these chasms have depth equal to that of the adjacent sea; but in the middle is a channel called Dybrendes, i. e. deep courses, from sifty to a hundred fathoms broad, and of the disproportionable depth of sour hundred †, seemingly time-worn by the strength of the current from the torrent-rivers which pour into them. Fish innumerable resort to their edges. These creeks are, in many places, the roads of the country; for the vallies which traverse it are often so precipitous as to be impervious, unless by water. Some, which want these conveniences, are lest uninhabited by reason of the impossibility of conveying to and from them the articles of commerce, or necessaries of life.

CHAIN OF IS-LANDS.

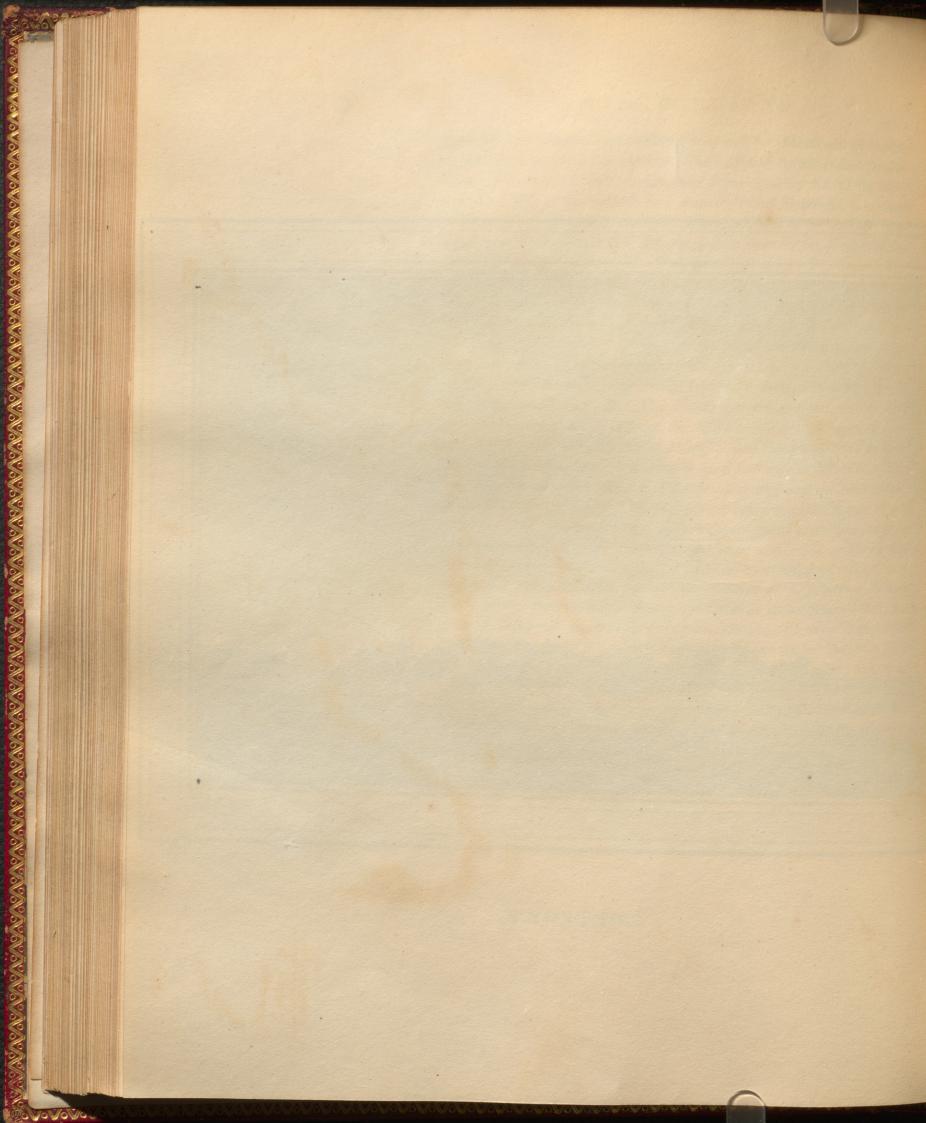
Millions of islands, large and small, skerries, or rocks, follow the greatest part of this wondrous coast. The islands are rude and mountanous, and foar correspondent to the Alps of the opposite continent. They run parallel to the coast, are generally of a long narrow form, and beset on outfide and infide with rock and skerries at small and regular distances. The isles of Loeffort, on the north side of the dreadful whirlpool the Moskoestrom, or Maelstrom, engraven by Le Bruyn, give a full idea of the nature of the coasts ‡. This whirlpool is only quiescent one quarter of an hour, at high and low water; and then alone the fishermen venture to pass: on the return or retreat of the tide, fuch is the fury of its vertiginous motion, that whatfoever comes within a confiderable diffance of it, is drawn in and forced to the bottom, where it remains for some hours, after which the shivered fragments appear on the surface. Boats, and even ships, have been fwallowed up by it: whales have been known to be caught within the vortex; their struggles to free themselves from the danger, and their piteous bellowings, are faid to furpass all description. The solution of this phænomenon is now rendered very eafy. It lies in the midft of the isles of Loeffort, in a narrow channel, between the isle of Moskoe and that of Ver; the depth of water is between thirty-fix and forty fathoms, but on

<sup>\*</sup> Pontoppidan, i. 68. † The same, i. 69. † Le Bruyn's Voyages, i. tab. 1.



SOUND TO SOU

LOEFFORT.



the fide next to Ver fo shallow, as not to give passage to a vessel without danger of splitting on the rocks. All the bottom is vastly craggy, shooting into stoney spires, which appear at low water above the surface; over them the flood and ebb roll with amazing rapidity, and whirl round with a noise equal to that of the greatest cataracts, so that the roaring may be heard several miles distant \*. So simply may be explained that wonder which philosophers have styled the navel of the sea; supposing it to have been an abys which sunk here, and rose again in the gulph of Bothnia.

The sea near the islands is so deep and rocky, that the Norwegian kings caused vast iron rings to be fastened with lead † to the sides, to enable ships to moor in security, or to assist them in warping out. A few of the former give shelter to the sishermen and their small stock of cattle; the rest rise in columns of grotesque forms. On the outside of these natural counterscarps, are multitudes of baubroe, or sea-breakers, longitudinal banks of sand, running north and south, from the distance of sour to sixteen leagues from the continent, and from ten to sisteen fathoms below the surface of the water; the haunts of myriads of useful sish.

No country furnishes such numerous and secure ports. Bergen, the capital of its district, lies at the bottom of a strait narrow bay, at the end of one of great expanse; it was sounded in 1073 by Olas the peaceable, and takes its name from the losty berg or mountain which impends over it. It seems also to have been known to the antients § by the name of Bergos. It is a place of considerable trade. Here, in 1665, a most unsuccessful attempt was made by an English squadron on a rich Dutch East Indian sleet, which had taken resuge under the guns of the castle. The very remarkable presage of Mr. Mountagu and another gentleman, respecting their deaths in this attack, is worth recording: more perhaps from the use the samous licentious Earl of Rochester (who was present) made of it, than the notion they had conceived. The gentleman, who was of undaunted courage, at the end of the action fell into such a trembling, that

BERGEN.

<sup>\*</sup> Torfæus Hist. Norv. 1. 94. Ph. Tr. 1x. 42. † Olaus Magnus, Gent. Septentr. lib. ii. c. xi. § Plinii Hist. Nat. lib. iv. c. 16.

Mr. Mountagu ran to support him; a ball at the instant slew them both. The first had entered into a solemn agreement with the earl, that in case either of them fell, that he should appear and give notice to the other of the future state, if there was any. The gentleman never appeared, which, as Lord Rochester confessed, was to him a great snare for the rest of his days, or rather till his happy conversion gave him a clear insight into the orders of Providence.

Drontheim is the most northern seat of empire we are acquainted with. It was founded by Olaf Trygguin, and was, in the flourishing days of Norway, the residence of its kings. Here were kept the archives of this kingdom, and its appendages the Scottish isles; all destroyed by a deadful fire. Its port is excellent, and its trade still considerable. That of Norway has been so from early times. Its credible records may be dated from the year 800; but from the classical names of certain parts, it is evident it was known in very distant ages.

TIDES.

The tides off the Naze, and most of the coasts of Norway, are very inconsiderable. At the North Cape, the spring tides have been observed to rise to the height of eight seet one inch; the neap to six seet eight inches\*. Mr. William Ferguson, an able pilot, who had often the conduct of our sleets in the North sea, informed me, that on the Naze, and many other parts of Norway, the tides were hardly perceptible, except with strong westerly winds, when they rose two or three seet, and sell with the casterly winds.

RIVERS.

Into the ends of most of the *Dybrendes* rush the furious rivers, or rather torrents, of the mountains; useless for navigation, but most singularly advantageous for the conveyance of the great article of commerce, the masts and timber of the country, from the otherwise inaccessible forests. The trees are cut down, and at present conveyed from some distance to the rivers, down which they are precipitated over rocks and stupendous cataracts, until they arrive at the *Lentzes* or booms †, placed obliquely in the

LENTZES.

\* Mr. Bayley, in Phil. Trans. lix. 270.

+ Pontoppidan, i. 93. tab. vil.

stream

fream in fit places. To them the owners of the timber refort; and, on paying a certain rate to the proprietors, receive their pieces, which are all marked before they are committed to the water; but numbers are injured or destroyed in the rough passage.

The species which is of such great value to Norway, is the Fyr or Fure, our Scotch Pine, and the Pinus Sylvestris of Linnaus. It grows in the drieft places, and fometimes attains the vast age of four hundred years \*; and is of universal use in the northern world. Such trees as are not destined for masts are squared, and arrive in England under the name of Balk: the rest are fawed on the spot, in hundreds of mills, turned by the torrents, and reach us in form of planks. An immense quantity of tar is made from the trees, and even from the roots, very long after they have been divided from the trunk. The Gran, Pinus Abies, or what we call Norway Fir, is in little efteem. Thousands are cut down annually by the peasants, who feed their cattle with the tender shoots. It is the tallest of European trees, growing to the height of a hundred and fixty feet. In winter, the branches are depressed to the ground with snow, and form beneath them the dens of wild beafts.

I must here mention the adventitious fruits, such as nuts and other Exoric FRUITS vegetable productions, which are brought by the waves to these shores, those of Feroe, and the Orknies, from Jamaica and other neighboring parts t. We must have recourse to a cause very remote from this place. Their vehicle is the gulph-stream from the gulph of Mexico. The trade- GULPH-STREAM: winds force the great body of the ocean to the westward through the Antills into that gulph, when it is forced backward along the shore from the mouth of the Miffiffipi to Cape Florida; doubles that cape in the narrow fea between it and Cuba, and from Cape Florida to Cape Cannaveral runs nearly north, at the distance of from five to seven leagues from shore, and extends in breadth from fifteen to eighteen leagues. There are regular foundings from the land to the edge of the stream, where the depth is geneally feventy fathoms; after that no bottom can be found. The found-

FOUND ON THE SHORES.

\* Amoen. Acad. v. 184.

+ Voy. Hebrides.

ings

ings off Cape Cannaveral are very steep and uncertain, as the water shallows fo quick, that from forty fathoms it will immediately leffen to fifteen, and from that to four, or less; so that, without great care, a ship may be in a few minutes on shore. It must be observed, that, notwithstanding the gulph-stream in general is faid to begin where foundings end, yet its influence extends feveral leagues within the foundings; and veffels often find a confiderable current fetting to the northward all along the coast, till they get into eight or ten fathom water, even where the foundings ftretch to twenty leagues from the shore; but their current is generally augmented or lessened by the prevailing winds, the force of which, however, can but little affect the grand unfathomable stream. From Cape Cannaveral to Cape Hatteras the foundings begin to widen in the extent of their run from the shore to the inner edge of the stream, the distance being generally near twenty leagues, and the foundings very regular to about feventy fathoms near the edge of the stream, where no bottom can be afterwards found. Abreast of Savannah river, the current sets nearly north; after which, as if from a bay, it stretches north-east to Cape Hatteras; and from thence it sets east-north-east, till it has lost its force. As Cape Hatteras runs a great way into the fea, the edge of the stream is only from five to seven leagues diftant from the cape; and the force and rapidity of the main stream has fuch influence, within that distance, over ships bound to the fouthward, that in very high foul winds, or in calms, they have frequently been hurried back to the northward, which has often occasioned great difappointment both to merchant ships and to men of war, as was often experienced in the late war. In December 1754, an exceeding good failing ship, bound from Philadelphia to Charlestown, got abreast of Cape Hatteras every day during thirteen days, fometimes even with the tide, and in a middle distance between the cape and the inner edge of the stream; yet the ship was forced back regularly, and could only recover its lost way with the morning breeze, till the fourteenth day, when a brifk gale helped it to stem the current, and get to the southward of the Cape. This shews the impossibility of any thing which has fallen into the stream returning or stopping in its course. On

On the outfide of the stream is a strong eddy or contrary current towards the ocean; and on the infide, next to America, a strong tide sets against it. When it sets off from Cape Hatteras, it takes a current nearly north-east; but in its course meets a great course that sets from the north, and probably comes from Hudson's Bay, along the coast of Labrador, till the island of Newfoundland divides it; part setting along the coast through the streights of Belleisle, and sweeping past Cape Breton, runs obliquely against the gulph-stream, and gives it a more eastern direction: the other part of the northern current is thought to join it on the eastern fide of Newfoundland. The influence of these joint currents must be far felt; yet possibly its force is not so great, nor contracted in such a pointed and circumscribed direction as before they encountered. The prevaling winds all over this part of the ocean are the west and north-west, and confequently the whole body of the western ocean seems, from their influence, to have what the mariners call a fet to the eastward, or to the north-east by east. Thus the productions of Jamaica, and other places bordering on the gulph of Mexico, may be first brought by the stream out of the gulph, inveloped in the fargasso or alga of the gulph, round Cape Florida, and hurried by the current either along the American shore, or sent into the ocean in the course along the stream, and then by the set of the stream, and the prevaling winds, which generally blow two-thirds of the year, wafted to the shores of Europe, where they are found \*.

The extent of the gulph-stream is supposed to be as far as Nantucket shoals, which are not less than a thousand miles from the gulph of Florida.

Let me remark, from Dr. Blagden †, the fingular difference of warmth in the gulph-stream, from that of the sea which limits its edges. In the month of April, in north latitude 33, and west longitude from Greenwich 76, somewhat to the north of Charlestown, the heat of the stream was found to be at lest six degrees greater than the water of the sea through

<sup>\*</sup> For this curious account, I am indebted to Doctor Garden, who, by his long refidence in Charlestown, is extremely well acquainted with the subject.

<sup>+</sup> Phil. Trans. 1xxi. 334.

which it ran. From observations made on the heat, it should seem that the breadth of the stream was about twenty leagues; and that it retains, for so great a part of its course, the heat it had acquired in the torrid zone: which proves the amazing velocity with which it runs. A pursuit of these remarks may be of no small utility to navigators who may have occasion to pass this singular current.

The mast of the Tilbury man of war, burnt at Jamaica, was by this vehicle conveyed to the western side of Scotland; and among the amazing quantity of drift-wood, or timber, annually slung on the coasts of Iceland, are some species which grow in Virginia and Carolina\*. All the great rivers of those countries contribute their share; the Alatamaha, Santee, and Roanok, and all the rivers which slow into the Chesapeak, send down in floods numberless trees †: but Iceland is also obliged to Europe for much of its drift-wood; for the common pine, fir, lime, and willows, are among those enumerated by Mr. Troille; all which, probably, were wasted from Norway.

The mountains of Norway might prove a boundless subject of speculation to the traveller. Their extent is prodigious, and the variety of plants, animals, and fishes of the lakes, are funds of constant amusement. The filver mines, wrought ever since 1623, are sources of wealth to the kingdom, and afford the sinest specimens of the native kinds yet known. Gold was found in a considerable quantity in 1697. Christian V. caused ducats to be coined with it; the inscription was in the words of Job, von MITTERNACHT KOMT GOLD, out of the north comes GOLD. Copper and iron are sound in abundance; lead in less quantities: tin does not extend to this northern region. It is difficult to say which is the beginning of this enormous chain. In Scandinavia it begins in the great Koelen rock at the extremity of Finnark. It enters Norway in the diocese of Drontheim, bends westward towards the sea, and terminates at a vast precipice, I think, the Heiresos, about three Norwegian miles from Lister.

METALS.

MOUNTAINS.



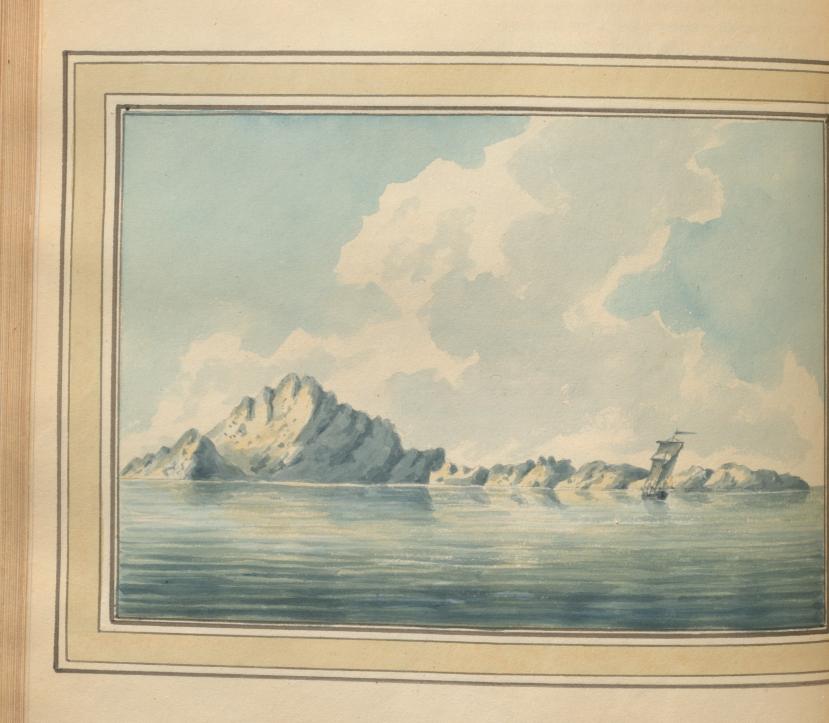
\* Troille's Voy. to Iceland, 47. + Doctor Garden.

<sup>†</sup> Pontoppidan, i. 179. Museum Regium Havniæ, pars ii. sect. v. tab. xx. No 18.—With more truth, perhaps, our version has it, out of the north cometh cold.

Another



TEDDER.



MOUNTBOMMEL.

Another branch of this mountain divides Norway from Sweden, fills Lapland, and rifes into the distinguished summits of Horrikalero, Avasaxa, and Kittis, and ends in scattered masses of granite, in the low province of Finland. It incloses Scandinavia in form of a horse-shoe, and divides it from the vast plains of Russia. The antient name of this chain was Sevo mons, to this day retained in the modern name Seveberg. Pliny compares it to the Riphæan hills, and truly says, it forms an immense bay, even to the Cimbrian promontory \*.

The mountains and islands break into very groteique forms, and would furnish admirable subjects for the pencil. The monstrous conoid mountains of Harmsoe and Luycko in Roemsdale, Syck in Bommel-Hooft, and the high lands of Jedder, form most striking features even in this rugged country. Among the desiderata of these days, is a tour into those parts by a man of fortune, properly qualified, and properly attended by artists, to search into the great variety of matter which this northern region would furnish, and which would give great light into the history of a race, to which half Europe owes its population. Among the views, the mountains of the Seven Sisters in Helgeland †, and the amazing rock of Torg-batten ‡, rising majestically out of the sea, with its pervious cavern, three thousand ells § long, and a hundred and fifty high, with the sun at times radiating through it, are the most capital. Not to mention the tops of many, broken into imaginary forms of towers and Gothic edifices, forts, and castles, with regular walls and bastions.

I agree with the Comte De Buffon, in thinking that the heights of the Scandinavian mountains, given by Bifhop Pontoppidan, and Mr. Browallius, are extremely exaggerated . They are by no means to be compared with those of the Helvetian Alps, and less so with many near the equator. The sober accounts I have received from my northern friends, ferve to confirm the opinion, that there is an increase of height of moun-

ROMANTIC VIEWS.

HEIGHTS OF MOUNTAINS.

\* Sevo mons ibi immensus, nec Riphæis jugis minor, immanem ad Cimbrorum usque promontorium efficit sinum, qui Codanus vocatur. Lib. iv. c. 13.

+ Pontoppidan, i. 46. tab. iii. 

† The same, i. 47. tab. iii. 

§ Of two

Danish feet each. 

| Epoques de la Nature, Suppl. tom. vi. p. 136. edit. Amsterdam.

P 2 tains



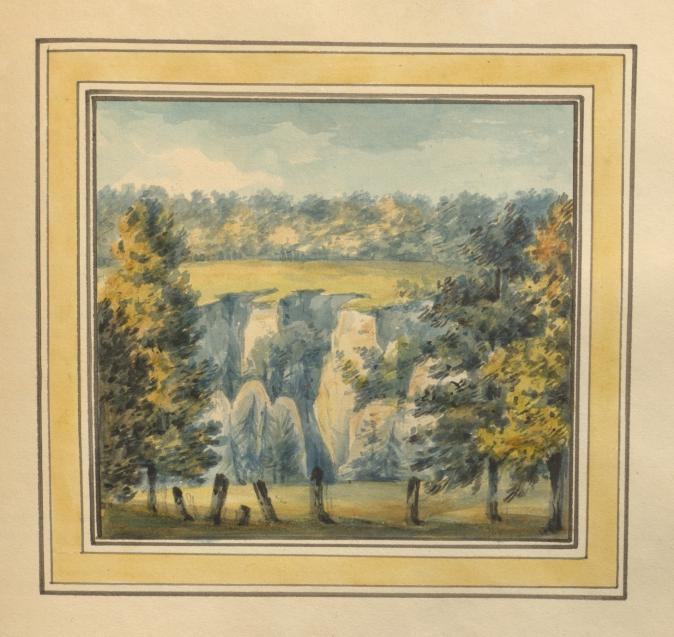
tains from the north towards the equatorial countries. M. Ascanius, professor of mineralogy at Drontheim, assures me, that from some late surveys, the highest in that diocese are not more than six hundred fathoms above the furface of the sea; that the mountains fall to the western side from the distance of eight or ten Norwegian miles \*; but to the eastern, from that of forty. The highest is Dovre-fiel in Drontheim, and Tille in Bergen. They rife flowly, and do not strike the eye like Romfdale-born, and Hornalen, which foar majestically from the sea. Professor Ritzius of Lund, acquaints me, that Kinnekulle in Westro-Gothia is only eight hundred and fifteen English feet above the lake Wenern, or nine hundred and thirty-one above the sea. He adds, the following have been only measured to their bases, or to the next adjacent waters: Areskutan, a solitary mountain of Famtland, about four or five Swedish miles from the highest Alps, which separate Norway and Sweden, is said to be six thousand one hundred and fixty-two English feet above the nearest rivers: Swuckustoet, within the borders of Norway, four thousand six hundred and sifty-eight above lake Famund; and that lake is thought to be two or three thousand above the fea: and finally, Sylfiællen, on the borders of Jamtland, is three thousand one hundred and thirty-two feet perpendicular, from the height to the base. By some late experiments, the highest mountains of Sweden, between lat. 63 and 64, have been found to be fix thousand fix hundred and fifty-two feet above the furface of the Baltic +; but no trees will grow on them at little more than half that height.

Pontoppidan gives the mountains of Norway the height of three thousand fathoms: Browallius those of Sweden two thousand three hundred and thirty-three, which makes them nearly equal to the highest Alps of Savoy, or the still higher summits of the Peruvian Andes.

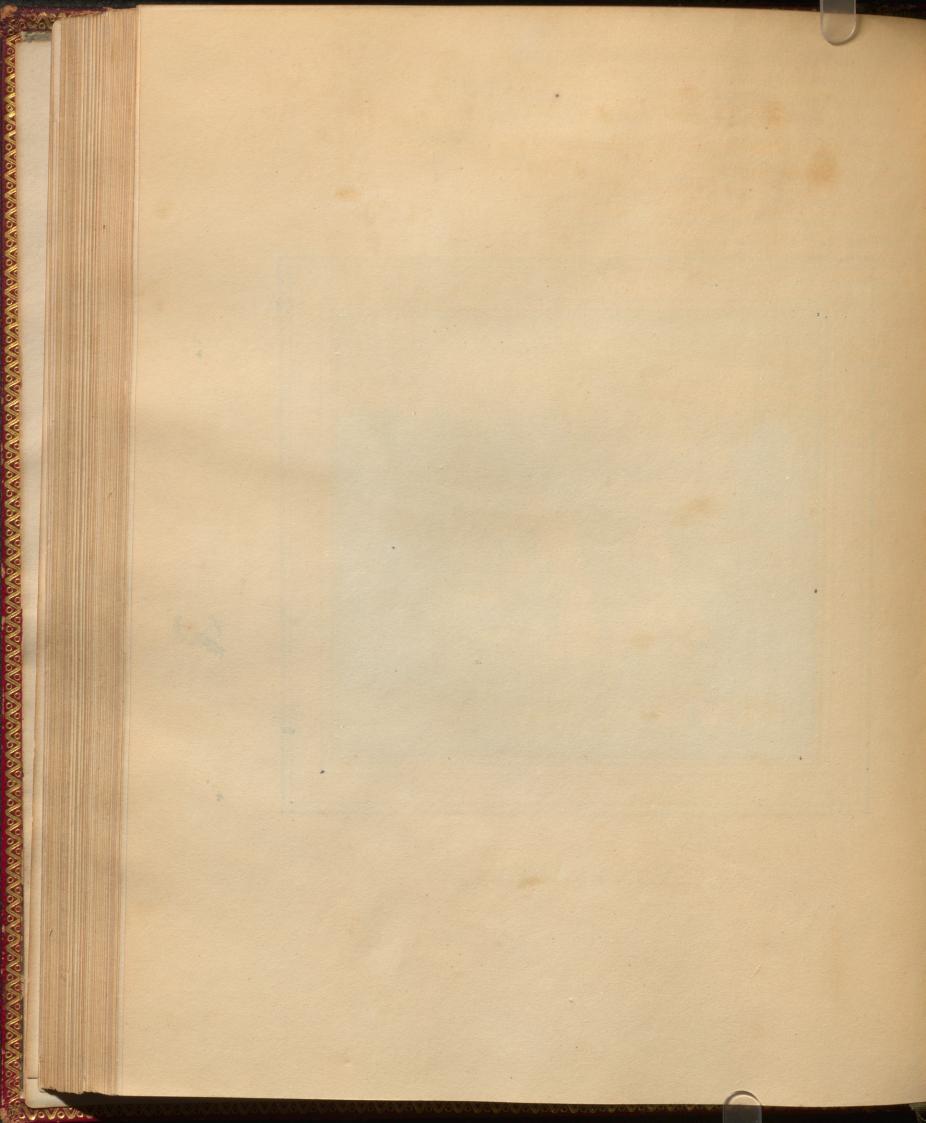
AICTIC LAKES.

The lakes of this great country are not less magnificent. That of Faris, in the fouth of Norway, is of great extent, and indented into numbers of fine bays. It is navigated by multitudes of vessels, subservient to the uses of the rich iron sounderies with which its coasts abound ‡.

\* Of 18,000 feet each. † Mr. Tornsten, in Act. Reg. Ac. Holm. † Mr. Coxe's Travels, ii. 484. Trolhætta, see Dahlberg, book ii. tab. 292.



ATTESTUPA.



The lake Wenern, in Sweden, is near ninety miles long, and forty broad. The shores so low, that it has a sea-like appearance. From this lake a project has been formed to open a communication with the German ocean. Attempts have been made even through the stupendous cataracts of Trolbetta to Gothebourg; but as yet the difficulties have bassled the art of the engineer. The Swedes seem to want a Brindley. The glorious project for joining the Baltic and the ocean has long been projected. Lake Malar is already united with lake Healmar, by the canal of Arboga; to join the last with lake Wenern has been planned: but the rockiness of the country seems to forbid the attempt.

The neighborhood of the Wenern lake is remarkable for several antiquities. Near the south end, in the mountain Haclaberg, is the celebrated Ættestupa, a tremendous precipice, down which the votaries of Odin used to precipitate themselves when weary of life, in order to arrive the sooner in the Valhalla, or hall of their hero \*. Their bodies were first washed, and afterwards buried at the foot of the hill †. These places were called Ættitupa, from ætt a family, and stupa to precipitate: and ætternis stupa the rock of the race or family; because, at such places, the tamily was lessened ‡. Not far from this Ættitupa was a circle of enormous upright stones, now called Hustwads stanar §, at which sacrifices were made in honor of these self-devoted enthusiasts.

Not far from hence is a row of small isles lying across the river Gotha, in which is Edsborg, the remains of the antient fortress of the kings of the Westrogoths.

The lake Wetter may be reckoned among those of the first rate. It extends from 57. 20. as high as 57. 40. north. The greatest breadth is sour Swedish miles and a half, or twenty-seven English. Its greatest depth three hundred and sixty feet: its height above the Baltic sea a hundred and sorty feet. It abounds with islands: the principal is that of Wissingson. On this the counts Brabe had a castle: at present there is a college, a school, and the royal park. The peninsula Omberg, on the eastern side of the

<sup>\*</sup> Dahlberg, tab. 279. Ihre Gloff. 807.

1 Bartholinus de causis contempt. Mort. 328.

<sup>+</sup> Busching Geogr. I. 287.

<sup>§</sup> Dablberg, tab. 280.

lake, is mountanous, and most beautifully covered with woods. The shores rocky, and worn into vast caverns, in old times the retreat of the natives from the ravages of war. The headlands exhibit most grotesque sports of nature, and are cloathed with ivy, a very rare plant in these northern regions; it blossoms here in March. Above forty rivers rush into this great water; all which find but one discharge, through the river Motala, which runs eastward, swells in its way into several other large lakes, and after tumbling down the great cataract near the city of Nordkoping, reaches the Baltic in Brawicken bay. This river carries through its channel hourly, not less than a hundred and forty thousand cubic fathoms of water: notwithstanding which, at seasons, its course seems stopt, and the very bottom is lest dry. This has happened the beginning of the present century. The cause of this wondrous phænomenon is attributed to the violence of the adverse winds, to the cold and ice impregnated with saline particles.

Before storms, the lake Wetter exhibits several strange appearances, such as the phantoms of cities, towers, sleets, and numbers of other most singular mimickry of real objects. I can compare them only to la Fata Morgana, a glorious vision often seen on the shores of the streights of Messina\*. Here are often vapours of a most fetid scent, attendant on the subterraneous winds which burst out of the neighboring caverns, probably out of some sulphureous strata. Winds often rise from the bottom of the lake (such I have felt in a less degree on the lake of Keswick) which are sometimes so violent as to raise the waves to a height dangerous to the vessels at that time navigating the lake.

The ice is of a very great thickness: but will frequently break into a thousand pieces in less than an hour, even after it had been just before capable of bearing a hundred horses. This is always foretold by dreadful founds like bellowing, and bursts like thunder, heard beneath the ice. After a deep stillness on the surface of the lake, at times a thick smoke will arise, such as issues out of a chimney; immediately follow lightning, rain, and often the sound of thunder exceeding the explosions of cannons,

\* Swinburne's Travels Sicily, 365.

roaring

roaring beneath the water. These noises are chiefly heard in the spring and autumn; the first symptom is the appearance of a bubble on the top. Before tempests, siery appearances arise from the midst of the waves, whirlpools, water-spouts, and various other singular phænomena. The lake is not covered wholly with ice till the latter end of January; it dissolves in the beginning of April. It is observed that the rivers are frozen much sooner than the lake itself. The inhabitants of the environs of the lake Wetter are healthy and long-lived; the fish sweet and wholesome: the waters so clear, that the bottom may be plainly seen at the depth of forty-eight and even sixty seet. The salmon reaches the cataract of the Motala at the end of July. Eels, at the wane of the moon, in July, August, and September, descend the river, and seek the Baltic sea.

The lake Mælaren or Mælar is of great extent and uncommon beauty. Its length is fixty English miles, the breadth thirty-fix. It receives eight rivers and ninety brooks, and, after dividing the capital of Sweden in two parts, mixes with the Baltic. It abounds with beautiful and fertile islands, richly varied with groves, castles, palaces, and villas, and adorned with every thing which art or nature could supply. The palace of Drottningholm is most superb. And the ruins of Siggtun, the seat of the hero Odin, surnamed Sigge, form a venerable group. The Swedish palaces have a species of sinery about them unknown to other countries\*. The Fauna of this lake and its environs are most remarkably great. I know of no place of equal extent that can boast an equal number of quadrupeds, birds, sishes, and reptiles: all within reach of a great capital.

As Stockholm forms the striking prospect of the lake, I shall just make mention of it. This singular city stands on two peninsulas and seven rocky islands; some low, others rise high out of the water, covered with variety of buildings; numbers also of granite rocks aspire out of the lake

<sup>\*</sup> Views on this lake in Dahlberg, book i. Siggtun, tab. 69, 70. Biorkoo, the feat of the Gothic kings, tab. 71. Carlberg, the prefent royal palace, tab. 73 to 77. Drottningholm, tab. 79 to 84. Groneborg, a most antient castle, tab. 107. Skogkloster, a palace of Coun Wrangel, tab. 142.

or fea on all fides \*. Multitudes are to be feen even within the walls; fo that for a while you doubt whether you are within the town. The magnificence of many of the buildings, the depth of the water, its great clearness, and the number of large ships which lie close to the quays, form a most charming and romantic view †.

MOUNTAINS OF FINMARK.

PLANTS.

In Finmark, the mountains in some places run into the sea: in others recede far, and leave extensive plains between their bases and the water. Their extreme height is on the Fiell-ryggen, dorfum Alpium, or back of the Alps, a name given to the highest course of the whole chain: the summits of which are clad with eternal fnow. These are skirted by lower mountains, composed of hard fandy earth, destitute of every vegetable, except where it is mixed with fragments of rock, on which appear the Saxifrages of feveral kinds; Diapensia Lapponica, Fl. Lapp. Nº 88; Azalea Procumbens, N° 90; the Andromeda Cærulea, N° 164; and Hypnoides, N° 165, thinly scattered. Lower down are vast woods of Birch, N° 341, a tree of equal use to the Laplanders, and the northern Indians of America. On the lower Alps abound the Rein-deer Lichen, Nº 437, the support of their only cattle; the Dwarf Birch, No 342, the feeds of which are the food of the White Grous beneath the fnow, during the long and rigorous winter; the Arbutus Alpina, No 161; and Arbutus Uva Urja, No 162; and, finally, the Empetrum Nigrum, or Black Heath Berries, used by the Laplanders in their ambrofial dish the Kappitialmas t.

Let me not conceal that Lapland enjoys every native fruit of Great Britain; the currant, the strawberry, the bilberry, the cranberry, and the

30 to 35,000 sheep. 24,000 hogs. 100,000 grous, of different species, brought out of Norland, especially the white grous and the black grous. After the exhausting wars of Charles XII. Sweden could reckon only one million of inhabitants; at present they are increased to near three. Mr. OEDMAN.

‡ Fl. Lapp. p. 108.

cloudberry:

<sup>\*</sup> Mr. Coxe's Travels, ii. 327. See the plan; also the views in Dablberg, book i. Nris 14, 15, 16, 17.

<sup>†</sup> It contains 20,000 inhabitants. Its markets are annually supplied with 14 to 15,000 beeves. 20,000 calves.

## NORTHERN PLANTS.

cloudberry: which put it on an equality with our own climate, before the introduction of foreign fruits among us. If we can clame the puckering floe, and crab, we have not much to be proud of; while the Laplanders may boast their ackermurie (rubus articus) which with its nectareous juice, and vinous slavour, so often supported the great Linnæus in his arduous journies through the deserts of the country \*. They may also exult in having given to our gardens the grateful angelica archangelica; the imputed gift of angels to men, and in Lapland the common inhabitant of the banks of every rill; the panacea and delight of the natives †, and (preferved) a frequent luxury even in our most sumptuous deserts.

The Scotch Pine, N° 346, and Norway Fir, N° 347, form the immense forests of Lapland, affociated with the Birch: the Pine affects the dry, the Fir the wet places, and grow to a vast size; but, being inaccessible, are loft to the great uses of mankind. On their northern fides they are almost naked, and deprived of boughs by the piercing winds; the wandering Laplander remarks this, and uses it as a compass to steer by, amidst these wilds of wood. Whole tracts are oft-times fired by lightning; then proftrated by the next storm. The natives make, of the under part of the wood (which acquires vast hardness by length of time) their snow-shoes; and form their bows for shooting the squirrel with pieces united with glue, made from the skin of the perch. Their fragile boats are formed of the thinnest boards: their ropes of the fibrous roots: and finally, the inner bark, pulverized and baked, is the substitute for bread to a people destined to this rigorous climate. These three trees, the Dwarf Birch, No 341, the Alder, No 340, and not less than twenty-three species of Willows, form the whole of the trees of Lapland. Every other Swedish tree vanishes on approaching that country.

There is a great analogy between the plants of these northern Alps, and those of the Scottish Highlands. A botanist is never surprized with meeting similar plants on hills of the same height, be their distance ever so great. It may be remarked, that out of the three hundred and seventy-

\* Fl. Lapp. 162.

+ The fame, p. 67.

0

nine

CXIII

RUBUS ARTICUS.

nine perfect plants which grow in Lapland, two hundred and ninety-one are found in Scotland; and of the hundred and fifty cryptogamous, ninety-feven are to be met with in North Britain.

TREES OF ARCTIC EUROPE.

In a philosophical circuit of the globe, it is easy to observe the exact proportion of necessaries, animal or vegetable, which are allotted by the allwise Providence to the demands of the inhabitants of the respective climates. To fuch part of the Europeans who were destined to active and exploring life; to the subjection and civilization of distant people, nearly unreclamed from a state of nature; the means of conveyance, for attaining so desirable an end, were supplied and pointed out. In distant ages, most part of the world was on an equality: the canoe served the navigation of the then unpolished Briton and Gaul, as it does at present the Americans of the recent discoveries. As the light of improvement spread over the western world, the application, and (in the case of pride-excited wars) the misapplication of many of the works of nature, became the attention of mankind. The fupple willow covered with hides, or the rude tree hollowed into a floating trough, no longer contented the laudable ambition of mankind; we no longer fuffered our wants to be supplied by the Thips of remote nations. We aspired to be our own carriers; we applied to our forests for the means; and for that purpose the oak first felt the edge of the ax. Commerce and war, the consequence of wealth, increased the demand, and stimulated to the utmost improvement in naval affairs. These arts spread as far as Europe was inhabited by an enlightened race; but there is a line which separates the rational from a less rational part of the human creation. The brave, the intelligent Swedes and Norwegians, born to conquer, if not destined to explore, are divided by a very narrow space from a race of men, the link, the partition between the intellectual and animal creation. The Laplander, with few wants, and those to be supplied only from the next forest or lake, has no demands farther than for birch for his canoes, or materials for his fledges. Accordingly we find that every species of tree, except the few I have mentioned, cease before they reach his torpid country. The OAK, quercus robur, is not found even in Sweden further than lat. 61. The last tree is found about about Geste in Gastrickland\*. It is met with farther north in Norway, in places near the milder air of the sea; but abounds in both kingdoms in their southern provinces. The forests of Blekingen are full of excellent timber, oaks as well as other trees, pines and firs excepted; which give that province quite the appearance of England. It has few masses of granite, sew iron forges, which, with groves of pines, form the characteristical face of Sweden. In that province are placed the royal docks of Carlescreen, the seat of the navy of the kingdom, in the neighborhood of the forests, its great support.

The Ash, fraxinus excelsior, is not found higher than Gestricia, or lat. 61; but in Norway is (cultivated only) as high as Drontheim.

The ELM, ulmus campestris, grows as far as the extremity of Helsing-land.

The Lime, tilia Europea, is frequent in all the fouth of Sweden, but grows scarce towards the north: it is destroyed by the frost beyond the province of Gastrickland. This is supposed not to have been an indigenous tree of Great Britain.

The Beech, fagus sylvatica. There are vast forests of this tree in Scania and Smoland; every where in Bahus, but seldom found north of that province, or lat. 59. This is the tree which Casar, from misinformation, denies to our island; but vast native woods are found in Bucking-hamshire, and some adjacent counties. Not indigenous of our northern counties.

This species ends in an island of the lake Wetter, and with a most remarkable tree, called the Tree of the Apostles, on account of its dividing into twelve great stems. At present there are only eleven, for a certain zealous peasant, some years ago, cut down one, least the traitor Judas should have a place among his brethren, who continue to slourish greatly. Numberless names are cut on the bark, among others, those of Charles XI. and XII. and the Queen Hedvig Eleonora, wife of Charles X; who were drawn by their curiosity to visit this beautiful tree.

<sup>\*</sup> All the additions to this part I owe to Mr. OEDMAN.

## TREES IN THE NORTH OF EUROPE.

The Hornbeam, carpinus betulus, is found in forests; in Scania commonly, but more rare in Smoland, especially beyond lat. 57.

The Betula Hybrida, is a new species of birch lately discovered in Dalecarlia, and probably peculiar to that place. It has in bark and fructification the habit of the birch; but the leaves partake of those of the acer platanoides.

The Aspin, populus tremula, is found from the highest alps of Lapland, to the lowest places of Scania; the Laplanders call it supp. Linnaus, in his Flora Suecica, refers to it in his Flora Lapponica, yet omits it in that admirable work. The rein-deer are very fond of the fresh leaves, which are often gathered for winter food for cattle: the bark is made into meal for cattle, and the leaves and bark into a tea for calves, in Norway\*.

The WHITE POPLAR, populus alba, is scattered over Scania, but is not a native, having been introduced there with the BLACK POPLAR, populus nigra, of late years, and bears the winter very well in Upland. It is doubtful whether these are natives of Scotland.

The Maple, the acer platanoides, is found in the fouthern parts of Sweden, and rarely on the mountain Hyka in Dalecarlia, one of its northern provinces. It grows in Romidale and fouthern Norway more frequently; is cultivated in Drontheim. The Common Sycamore, or acer pseudo-platanus, is only cultivated in Sweden. Mr. Ray suspects it not to be a native of England.

The LITTLE or COMMON MAPLE, acer campestre, is rarely found above two Swedish miles from Lund; possibly not a native Swedish tree: the largest I ever saw was at the duke of Argyle's, at Inverary.

The BLACKTHORN OF SLOE-TREE reaches as far as Norland.

The Buckthorn, rhamnus catharticus, ends in Upland. The White Beam, cratægus aria, is feldom feen beyond Upfal. The Wild Cherry, prunus avium, is found no farther than Scania or Westrogothia. The Wicken Tree, forbus aucuparia, bears the winters of Norland. The Water Elder, viburnum opulus, is found to the extreme north of the same

\* Gunner's Fl. Norweg. No CXXXVII.

diftrict.

district. The Common Privet, figustrum vulgare, enlivens the province of Upland.

All the above are found in some part or other of Great Britain, more auspiciously favored by nature for the growth of trees and plants than northern Sweden. No blame can rest on any nation, to whom the sun has denied its fuller influence: let such exult in vigor of body and acuteness of intellects, perhaps superior to those on whom it darts its enervating beams, and bestows every species of enseebling luxury.

I request leave to make, by the following catalogue, a comparison between the climate of Sweden and that of England. These plants bear the utmost severity of our cold; yet are obliged in Sweden to be sheltered, during winter, under the protection of a green-house. A few specimens, out of a number, will suffice,

White jasmine, Yellow jasmine, Phillerea, Common fage, Rosemary, Scarlet monarda, Male dogwood, Common holly, A. Prickly buck-thorn, Virginian fumach, Laurus tinus, Pinnated bladder-nut, Scarlet flowering maple, Spurge laurel, Bay-tree, Arbor judæ, Garden rue, Pomegranate,

Common almond-tree,

Jasminum officinale. Jasminum fruticans. Phillerea media. Salvia officinalis. Rosmarinus officinalis. Monarda fistulosa. Cornus mas. Ilex aquifolium. Rhamnus paliurus. Rhus glabrum. Viburnum tinus. Staphylæa pinnata. Acer rubrum. Daphne laureola. Laurus nobilis. Cercis filiquaftrum. Ruta graveolens. Punica granatum. Amygdalus communis.

Portugal

## COMPARISON OF CLIMATES.

Prunus lusitanica. Portugal laurel, Cockfpur thorn, Cratægus coccinea. Common medlar, Mespilus germanica. Flowering raspberry, Rubus odoratus. Liriodendron tulipifera. Tulip-tree, Spanish tree germander, Teucrium latifolium. Garden thyme, Thymus vulgaris. Broad-leaved lavender, Lavendula spica: Yellow ferusalem sage, Phlomis fruticofa. Trumpet honeyfuckle, Bignonia radicans. Cytissus laburnum; sometimes in open Common laburnum, air. Bastard acacia, Robinia pseud-acacia. Climbing milk-vetch, Glycine apios. Common box, A. Buxus sempervirens. Mulberry, Morus nigra; fometimes in open air. Walnut, the nuts of which ? Juglans regia. will not ripen, Chefnut, Fagus castanea. Western plane, Platanus occidentalis. Common cypress, Cypressus sempervirens. Western arbor vitæ, Thuja occidentalis. Male myrtie-leaved fumach, Coriaria multifolia. Butchers broom, A. Rufcus aculeatus.

One other shrub, which resists the severest of the English winters, is preferved in Sweden, during that season, in the tepedarium or dry stove, without tan: this is the common laurel, or prunus lauro-cerasus. I may add the cistus ladaniferus, which grows with great vigor on the rocks of the beautiful inclosure called Arcadia, near the town of Conwy, belonging to my friend Owen Holland, Esq.

Pine-apple, the bromelia ananas, has been introduced into Sweden, and fruit

fruit cut at the feat of Baron de Geer, at Leufstad\*. Peaches, nectarines, and apricots, are sheltered during winter; but, notwithstanding art is used, travellers do not commend them. Apples, pears, plums, and cherries, are cultivated only in the southern parts; but (the cherries excepted) afford a very indifferent fruit. Cherries bear the cold of the north of Helfingland, and bear in great abundance. In Scotland they succeed very ill: nonpareils and golden rennets will not ripen even at Edinburgh without the help of a wall. Yet in the middle of August 1769, I have seen, at Castle Braun, in Rossshire, in about lat. 57. 42, Turkey apricots, orange nectarines, and a soft small peach, against a common wall, ripe: but at the same time other peaches, nectarines, and green-gages, far from maturity.

Notwithstanding England is so noted for its vast produce of apples, yet such is its demand for them, that it imports great quantities from Normandy, and even North America. In 1785 the duty at the custom-house amounted to 5651. 16s. at the duty of about 2s. per bushel; that was in a year of scarcity: but in the preceding year, which was remarkable for

its plenty, it amounted to 2781. 115.

Mr. Hogstrom, a patriotic gentleman, whom Providence hath placed beyond the arctic circle, in lat. 66, hath by art brought apples to bear ripe fruit even in that distant region. He has also transplanted several trees and shrubs of the south of Sweden into his rigorous climate: and has even brought the mulberry, a native of China, to grow several years under his frozen sky. He mitigates the nocturnal frosts by burning semi-putrid wood, the slowness and thickness of which alleviates a little the rigor of the nights.

Wood-strawberries are the most delicious fruit in Sweden, and abound in most amazing quantities. The great LINNÆUS kept himself free from

a fit of the gout for several years by the liberal eating of this fruit.

In respect to the production of Ceres, it may be said, that the goddess extends her bounty in form of wheat with a sparing hand, and that only in the southern provinces. Barley is the general food of the common people;

and in the sub-alpine parts of the country, oats alone will attain maturity. Sweden is obliged annually to purchase from other countries sifty thousand Swedish, or about six thousand tons English measure of wheat, of which the greatest part is employed to make powder and starch. Wheat will ripen as high as lat. 62. north; but so uncertain is the crop throughout Sweden, that it is called the seed of repentance. The winterwheat is very often destroyed in severe winters, or by nocturnal frost of the spring.

The following is a compendious table of the Swedish Ceres:

GRAIN.	Soil.	TIME OF SOWING.	HARVEST.	PRODUCE.	How FAR NORTH.
Winter wheat	Clay -	Mid. Sept.	End Aug.	10 or 12 fold.	Seldom above Upland. Sometimes
Summer wheat	Soft earth	Begin. April	The fame.	6 fold.	fown mixed with rye.  Not beyond Smoland.
Winter rye —	Clay -	Mid. Aug.	Beg. Aug.	10 fold.	In Norland; feldom in the fields, but
Summer rye —	Soft earth	In March	End Aug.	6 fold.	in the ashes of the burnt woods.  Not beyond Smoland. In weak fandy land is mixed with oats.
Barley —	every where	At the budding of the beech.	September.	8 to 10 fold.	Sometimes fown with oats. The chief grain of Norland.
	In fandy foil	May.	October.	6 fold.	The black the best. Common in Norland and the sandy soil of Smoland.
Buck-wheat, Polyg. fagopyrum }	\$ 323 777 to 32		la Taul		In Scania. Scarcely bears the climate of Upland.
Polyg. Tataricum.	less Tabas	Land To Down	istaTr o	normalis com	Finland; bears the climate well, but is neglected.

The esculent roots succeed well in Sweden. A potato has been raised at Wermdon, near Stockholm, of the weight of eighteen ounces; this was thought a large one. The cultivation in Sweden is too much neglected; it would

\* Amæn. Acad. III. 77.

frequently

frequently fave Norland \* from the fad effects of famine. At the fame place, a cabbage has been cut of fifteen pounds weight.

WINTER begins in Sweden with what are called the Farnnatter or iron nights, which seldom exceed three or four, and happen between the 19th and 31st of August, in the latitude of Upsal. After these, barley ceases to grow, and the plants which require a green-house are no longer suffered to be abroad. Water-fowls almost of every denomination disappear in autumn. In October, the BEAR, BADGER, HEDGE-HOG, and Mole, retire to their winter-quarters. In the same month is the first appearance of ice. In November is alternate fnow and ice, an unpleasant thaw, and rain. The ditches are filled with water, till the show takes firm possession of the ground, and winter reigns uninterrupted for many months. Between the 20th and 28th of February are the days of steel +; the ice on the lakes cracks longitudinally, the timbers of the houses snap with a great noise, and horsedung spurts out icy particles a foot high. In March begins the unpleasing fpring: the fnow begins to melt against the walls, the ice is loosened from the stones, and the hills begin to appear of their own color. Inundations of fnow-water, in April, cover the ground; the rivers are unbound, and the ice floats down. Birds of various kinds revisit the country; the fight of the wheat-ear confirms the flight of the more fevere frosts, except the few leaden nights in May; after which fummer is confirmed, and the return of birds is completed. In June are the brazen nights, which, with the leaden, reach Sweden eight days after they are felt in Lapland, on the thaw of its snow. These are the revolutions of a Swedish year.

The Alps, the woods, and marshes of the vast region of Scandinavia QUADRUPEDS OF (for I will confider it in the great) give shelter to numbers of quadrupeds unknown to Britain. Those which brave the severity of the extreme north of this country are distinguished by the addition of the Lapland name. The ELK, is found in many parts: the REIN, Godde, is confined to the

SCANDINAVIA.

<sup>\*</sup> The north of Sweden, bounded to the fouth by Upland and Dalecarlia, and by Lapland to the north; it is divided into feven provinces; Gastrickland, Helsingeland, Medelpad, Jemteland, Herjadalen, Angermanland, Westerbotn. + Amæn. Acad. iv. 395.

chilliest places: the Wolf, Kumpi, is a pest to the whole: the Arctic Fox, Nial, skirts the shores of all the northern regions: the Cross Fox, Raude, and the BLACK Fox, is scattered every where: the LYNK, Albos\*, inhabits the thickest woods: the BEAR, Guouzbia, and GLUTTON, Gieed'k. have the fame haunts: the SABLE, which continued in Lapland till the middle of the last century, is now extinct: the Lesser Otter, or Mænk, of the Swedes, is confined to Finland: the Beaver, Majag, is still found in an unfociable state in several parts: the FLYING SQUIRREL, the Orava of the Finlanders, is found in their forests +, and those of Lapland: the LEMMUS, Lumenik, is at feafons the pest of Norway, issuing like a torrent from the Koelen chain: The WALRUS, Morsh, is sometimes found in the Finmark feas: the HARP SEAL, Dælja, the ROUGH SEAL, the HOODED, Oanide? and the LITTLE SEAL, Hift. Quad. ii. No 386, omitted by me in the first edition of this Work, inhabit the same place ‡. The last, says Bishop Gunner, is eaten salted, not only by the Laplanders, but by the better fort of people in Finmark.

Of animals found in Britain, the Fox, Ruopfok; PINE MARTIN, Nætte; Ermine, Boaaid §; Weesel, Seibush; Otter, Zbieonares; Varying Hare, Njaumel; Common Squirrel, Orre; Mouse, Field Mouse, Water Rat; and the Shrew, Vandes and Ziebak; are seen as high as Finmark: the Common Seal, Nuorrosh, and the Great Seal, also frequent the shores. All the other quadrupeds, common to Scandinavia, cease in Norway, and some even in Sweden. Scandinavia received its animals from the east; but their farther progress was prevented by the intervention of the North sea between that region and Britain. Our extinst

\* I have no proof of this but the name. The Lynx inhabits Norway and Sweden, and all the woody parts of Sibiria. I fcarcely know whether I should apologize for the omission of the Fitchet, Hist. Quad. i. No 195; the Mustela Putorius, No 16, Faun. Suec. Linnæus speaks with uncertainty of its being found in Scania, and that is a latitude rather too far south for my plan.

+ See Mr. Gabriel Bonsdorff's account of the animals of Finland, p. 24.

‡ Consult Leems Lapm. 214, 215, 216. Also for the Mouse, &c. which want the Lapland names.

§ Leems, 220.

species,





## BIRDS, FISHES.

species, the BEAR, the WOLF, and the BEAVER, came into this island, out of Gaul, before our separation from the continent. Some of the northern animals never reached us: neither did the north ever receive the Fallow DEER, the Harvest Mouse, the Water Shrew, nor yet the Brown RAT, of this Work; notwithstanding it familiarly goes under the name of the Norway \*.

This great tract has very few birds which are not found in Britain. We may except the Collared Falcon, the Scandinavian Owl, Rock Crow, ROL ER, BLACK WOODPECKER, GREY-HEADED, THREE-TOED, the RE-HUSAK GROUS, and the HAZEL GROUS; the ORTOLAN, the ARCTIC FINCH, and the Lulean F. The GREY REDSTART WARBLER, the BLUE THROAT W. BOGRUSH W. FIG-EATER, and KRUKA W. and the SAEBY TITMOUSE. All the cloven-footed water-fowl, except the Spoon-BILL, the CRANE, WHITE and BLACK STORKS, FINMARK SNIPE, STRIA-TED SANDPIPER, SELNINGER, WAVED, SHORE, WOOD, ALWARGRIM PLOVER, and ALEXANDRINE; and all the web-footed kinds, except the CASPIAN TERN, HARLEQUIN DUCK, and LAPMARK and WESTERN Duck +, are common to both countries; but during fummer, FIELD-FARES, REDWINGS, WOODCOCKS, and most of the water-fowl, retire from Britain into Scandinavia, to breed in fecurity: and numbers of both land and water-fowl quit this frozen country during winter, compelled, for want of food, to feek a milder climate.

The fishes of this extensive coast amount to only one hundred and eleven, and are inferior in number to those of Britain by twenty-eight. The species of the North sea, which differ from the British, are not numerous. The depth of water, and the forests of marine plants which cover the bottom of the Norwegian seas, are affuredly the cause of the preference of certain kinds, in their residence in them. Among the fishes which have hitherto shunned the British shores, are the

\* It is a native of the East Indies. See Hist. Quad. ii. No 44.



Crimson Cromn. BIRDS. aby Titmouse. FISHES. Grey Redstart. Blue Throat.

CXXIII

SQUALUS SPINAX of Linnæus, 398. Its length is from twenty inches to three feet: the back is purple: the belly flat and black. It is found off Christiansand, in the muddy vallies of the sea, of one or two hundred fathoms in depth.

Squalus centrina, LIN. 398. Bloche iv. 21. the Pesce porco of the Italians, which extends as far as the Mediterranean; a clumsy species, not exceeding four feet in length.

SYNGNATHUS TYPHLE, LIN. 416. BLOCHE iii. 100, and S. aquoreus Lin. 417. Bloche iii. 104.

Regalecus Glesve, fild-kong, or king of the berrings; Muller, N° 335. Ascan. Icon. tab. xi; a most uncommon eel-shaped fish, found about Glæsver near Bergen. Its length is from ten to eleven feet. The dorsal fin extends the length of the back, and unites with that of the tail. The pectoral fins are filiform, ovated at their ends, and one-third the length of the body.

GADUS BROSME, Muller, N° 341; a species of monopterigeous Cod, an article of commerce frequent on all the coast.

GADUS DYPTERIGIUS, or Byrke-lang, Muller, N° 346, Act. Nidr. iii. 446. tab. viii.

BLENNIUS RANINUS, LIN. 444, and Blennius fuscus, Muller, N° 360. ECHINEIS REMORA, LIN. 446, found as far as Iceland. See Muller, N° 361, extends to the East and West Indies.

CORYPHÆNA NOVACULA, LIN. 447, found also in the Mediterranean sea. CORYPHÆNA RUPESTRIS, Muller, N° 363. Att. Nidr. iii. tab. iii. taken as far south as Gibraltar.

Gobius Jozo, Lin. 450. Bloche iii. 144.

PLEURONECTES CYNOGLOSSUS, et LINGUATULA, LIN. 456,457.

SPARUS ERYTHRYNUS, LIN. 469, common to Norway, Italy, and America.

LABRUS SUILLUS, Muller, N° 381.

Perca Norvegica, Muller, N° 390. Ascan. Icon. tab. xvi; a red species, very fat and nourishing, which grows to the length of two feet and a half, peculiar to Nordensields.

SCOMBER

Blennius Raninus.



Scomber Pelagicus, Lin. 445. Act. Nidr. iv. 92. tab. xii? possibly the same with that found at Jamaica.

SILURUS AZOTUS, LIN. 501. the Soekat of the Norwegians, Pontoppidan ii. tab. iv. Catesby ii. p. 23.

SALMO ARCTICUS, OF CAPELAN; a species so abundant about New-foundland.

SALMO SILUS, or SIL, Muller, Nº 418. Afcan. Icon. tab. xxiv. This is the only species of Salmon which never quits the sea: is full of bones, but excellent eating. A scarce species, growing to the length of two seet. Engraven.

SALMO KULMUND, Ascan. Icon. xxxiii. taken not in the sea, but in the river Randsfiord. It grows to the length of two seet; is of a purple color, spotted with silver and minute black spots. Unlike other Trouts, it never quits its station.

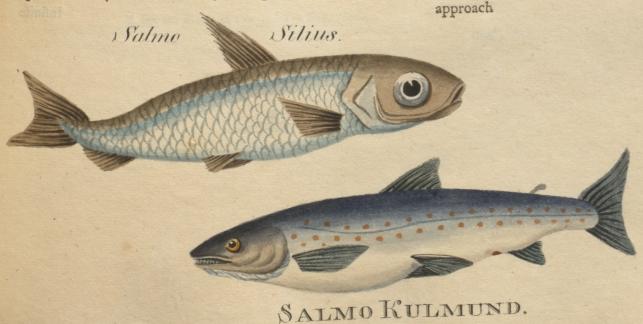
These are not the sishes of general use. Providence hath, in these parts, bestowed with muniscence the species which contribute to the support of mankind; and made thereby the kingdom of Norway a coast of hardy sishermen. The chain of islands, and the shores, are the populous parts. It is the sea which yields them a harvest; and near to it stand all the capital towns: the staples of the produce of the ocean on one hand, and of the more thinly inhabited mountains on the other. The farther you advance inland, the less numerous is the race of man.

The Herring, the Cod, the Ling, and the Salmon, are the maritime wealth of this country. The Herring has two emigrations into this fea: the first is from Christmas to Candlemas, when a large species arrives, preceded by two species of Whales, who, by instinct, wait its coming. The fishermen post themselves on some high cliff, impatiently waiting for the cetaceous fish, the harbingers of the others. They look for them at the moon Torre, or the first new one after Christmas, and the moon Gio, which immediately follows.

These Herrings frequent the great sand-banks, where they deposit their spawn. They are followed by the Spring Herrings, a lesser sish, which

THOSE OF USE.

HERRINGS.



approach much nearer to the shore; after which arrive the Summer Herrings, which almost literally fill every creek: the whole sishery is of immense profit. From fanuary to October, 1752, were exported, from Bergen alone, eleven thousand and thirteen lasts; and it was expected that as many more would be shipped off before the expiration of the year. The Herrings which visit this coast are only part of the vast northern army which annually quits the great deeps, and gives wealth and food to numbers of European nations.

Cop.

The Cod yields another fishery of great profit. They first arrive immediately after the earliest Herrings, and grow so pampered with their fry, that they reject a bait; and are taken in vast nets, which are set down in fifty or seventy fathom water, and taken up every twenty-sour hours, with sour or sive hundred great fish entangled in them. As the Herrings retire, the Cod grows hungry; and after that is taken with hook and line, baited with Herring. In more advanced season, other varieties of Cod arrive, and are taken, in common with Turbot and other sish, with long lines, to which two hundred short lines with hooks are sastened: the whole is sunk to the bottom; its place is marked by a buoy sastened to it by another line of sit length. The extent of the Cod-sishery may be judged of on hearing that 40,000 tonder, of sour bushels each, of French and Spanish salt, are annually imported into Bergen for that purpose only.

They grow here to the weight of fifty pounds, and from two to four feet in length. A fingle ovary of this species has been known to weigh fourteen pounds, and to contain nine millions of eggs: we need therefore never to fear the exhausting of this species. Ship loads of the spawn are annually sent to France.

LING.

The Ling is taken on the great fand-bank during fummer, by hook and line, and, being a fish noted for being capable of long preservation, is much fought after for distant voyages.

SALMON.

The Salmon, a most universal northern fish, arrive in the Norwegian rivers in amazing numbers, and vast quantities are sent, smoke-dried or pickled, into various countries.

Infinite

Infinite multitudes of rare Vermes, Shells, Lithophytes and Zoo- Curious Fishesphytes, are found in the *Norwegian* feas; feveral of which, before their difcovery by Bishop *Pontoppidan*, were supposed to have been inhabitants of most remote places \*.

Among the Lithophytes is that elegant madrepore or coral, called the madrepora pertusa, Ast. Nidr. IV. tab. II. fig. I. The isis hippuris—tab. IV. fig. 8. The gorgonia lepadifera—II. tab. IX. fig. 2. Gorgonia placomus—III. tab. I. fig. I. which grows to a vast size. Another species of gorgonia, with slender cylindrical branches, figured in the Ast. Nidr. II. tab. IX. fig. I. The vast alcyonium arboreum—IV. tab. XI. fig. I; and some other species sent to me by the late Bishop Pontoppidan, from the Norwegian seas; among which shelter infinite numbers of marine animals. On one, I first discovered a concha anomia in the recent state, which Linnæus named the anomia retusa, Vol. I. p. 1151. N° 225.

Among the animals which LINNÆUS calls vermes, is found the pennatulus mirabilis, Faun. Suec. N° 2261; and a very fingular long-spined echinus with a small body, engraven by the above-cited worthy but credulous prelate. As a member of the royal society at Drontheim, in Norway, I wish my brethren would be stimulated to a due attention to the wonders that surround them, and form a local museum, confined to the subjects of that extensive kingdom.

Exotic fruits flung on the coasts of Norway, which I have not described in my voyage to the Hebrides, are the following:

Pods of the cassia fistulosa.

IN

The kidney-shaped nut of the anacardium occidentale.

Fruit of the cucurbita lagenaria, pisidia erythrina, and the cocos nucifera.

The præfecture of Nordland, is the farthest part of the kingdom of Norway. In it is the district of Helgeland, remarkable for that uncommon genius, Otther, or Obthere, who, in a frozen climate, and so early as the ninth century, did shew a passion for discovery, equal perhaps with

NORDLAND.

OF OCTHER.

\* See the Plates in Pontoppidan's Hist. Norway.

that of the present. His country was at that time the last in the north which had the left tincture of humanity. In the year 890 he was attracted by the fame of our renowned ALFRED. He vifited his court, and related to him his voyages. He told the monarch that he was determined to prove if there was any land beyond the deferts which bounded his country. It appears that he failed due north, and left, on his starboard side, a waste, the present Finmark, occasionally frequented by the Finnas, or wandering Laplanders, for the fake of fishing and fowling. He went as far as the Whale-fishers usually ventured: a proof that the men of Norway practifed that fishery many centuries before the English. He doubled the North Cape, and entered the Cwen Sea, or White Sea, and even anchored in the mouth of the Dwina. He was to these parts what Columbus was to America: but the knowlege of this country was to us lost for centuries after the days of OEther. He mentioned the Scride Finnas, who lived to the north-west of the Cwen Sea, and who wore snow-shoes. The country about the Dwina was well inhabited by a people called Beormas, far more civilized than the Finnas. The map attending ALFRED's Orofius places them in the country of the Samoieds, a race at prefent as uncultivated as mankind can be. OEther fays, that in this fea he met with Horfe-Whales (Walruses) and produced to the prince specimens of their great teeth, and of thong-ropes made of their skins; a mark of his attention to everything curious which occurred to him \*.

Norwegians a fine race. I must not leave Norway without notice of its chief of animals, Man. Scandinavia, in the course of population, received its inhabitants by colonies of hardy Scythians, who, under the name of Sarmatians, extended themselves to the coasts of the Baltic. In after-times their virtue was exalted by the arrival of their countryman, Odin, and the heroes he settled in every part of the country. The severity of the climate has not checked the growth, or distorted the human form. Man here is tall, robust, of just symmetry in limbs, and shews strongly the human face divine. Their hair is light: their eyes light grey. The male peasants of the mountains

<sup>\*</sup> The Translation of Orofius, by the Hon. Daines Barrington, p. 9, &c. and Hackluyt, i. 4.

are hairy on their breasts as Bears, and not less hardy: active in body: clear and intelligent in their minds. Theirs certainly is length of days; for out of six thousand nine hundred and twenty-nine, who died in 1761, in the diocese of Christiana, three hundred and ninety-sour lived to the age of ninety; sixty-three to that of a hundred; and seven to that of a hundred and one \*. The Norwegians justly hold themselves of high value; and slightingly call their sellow-subjects, the Danes, Jutes †. The Danes tacitly acknowlege the superiority, by composing almost their whole army out of these descendants of the all-conquering Normans.

仙

As I am now on the subject of the Norman race, let me not suppress a small tribute to the memory of my amiable and respected friend Daniel Solander, born at Pitea in Westerboth, February 28, 1736, in lat. 65. 21. within little more than a degree of the Artic circle: but his genius was by no means frozen. His acquired knowlege was very great; and his liberal mind made him eager to render it subservient to the benefit of mankind: his affability endeared him to all his acquaintance. He was a favorite pupil of Linnæus, who spoke of him to me in these most tender terms: 'Eum ut silium apud me habui; eum in Anglia coegi; eum apud vestrates Commendavi; 'His untimely death, on May 13th, 1782, deprived the world of the labors of his pen; the vast and desirable collection he had formed respecting the Artic and Antartic regions.

The plants which he had collected were fent for into Sweden by his heirs, and fold there by auction. They amounted to seven thousand specimens; but, after taking out the duplicates and triplicates, the number was reduced to three thousand, of which very sew were natives of the Pacific Ocean. And, mortifying to reslect, the labors of the most important part of the life of this able philosopher, were sold for the trisling sum of seventy-sive pounds sterling §!!!

Within the Artic circle, begins Finmark, a narrow tract, which winds about the shores eastwards, and bends into the White Sea: a country divided between Norway and Russia. The view from the sea is a stat,

LONGEVITY.

FINMARK.

<sup>\*</sup> Phil. Trans. vol. lix. 117. + Lord Molesworth's Account of Denmark, 25.

<sup>1</sup> Letter, dated Upsal, October 22, 1771. § Mr. Oedman.

bounded, a little inland, by a chain of lofty mountains covered with fnow. The depth of water off the shore is from a hundred to a hundred and fifty fathoms \*. The inhabitants quit their hovels in winter, and return to them in the summer: and, in the middle of that season, even the Alpine Laplanders visit these parts for the sake of fishing; and, like the antient Scythians, remove with their tents, their herds, and furniture, and return to their mountains in autumn †. Some of them, from living near the sea, have long been called Siæ Finni, and Soe Lappernes.

NEW RACE OF MEN.

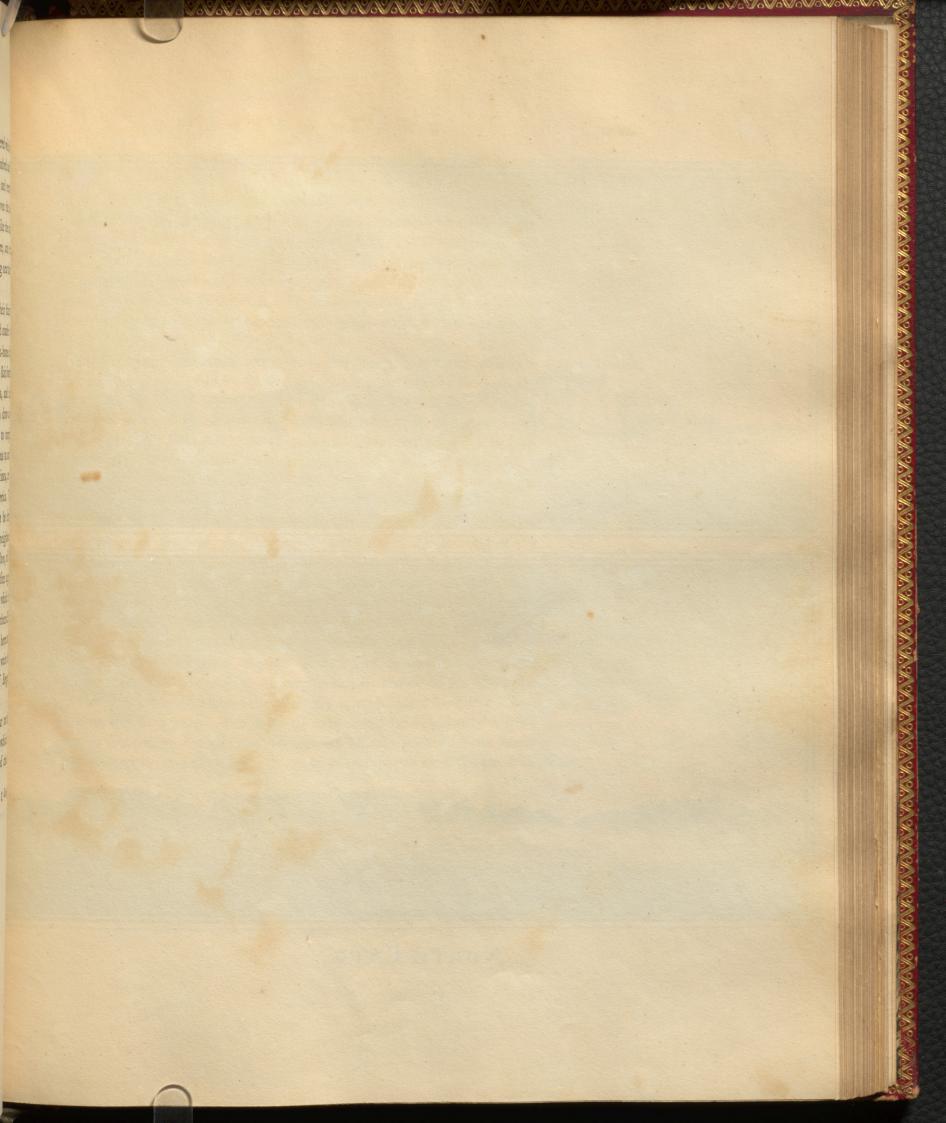
In this country begins inftantly a new race of men. Their flature is from four to four feet and a half: their hair, short, black, and coarse: eyes transversely narrow: irides black: their heads great: cheek-bones high: mouth wide: lips thick: their chests broad: waists slender: skin swarthy: shanks spindle ‡. From use, they run up rocks like goats, and climb trees like fquirrels: are fo ftrong in their arms that they can draw a bow which a flout Norwegian can hardly bend; yet lazy even to torpidity, when not incited by necessity; and pusillanimous and nervous to an hysterical degree. With a few variations, and very few exceptions, are the inhabitants of all the Arttic coasts of Europe, Asia, and America. They are nearly a distinct species in minds and bodies, and not to be derived from the adjacent nations, or any of their better-proportioned neighbors.

SALMON FISH-ERIES.

The feas and rivers of Finmark abound with fish. The Alten, of West Finnark, rifes in the most remote mountains of Lapland, and after a gentle course through mountains and forests, forms a noble cataract, which tumbles down an immense rock into a fine bason, called, in the Northern Pilot, Alten bottom, the receptacle of numbers of vessels which resort here to fish or traffic for Salmon §. They are taken by the natives in weirs built after the Norwegian model; and form, with the merchants of Bergen, a great article of commerce.

This coast is attended by chains of rocks and islands, similar to those of Norway, and are only a continuation of them: the chief of which are Sanien, Trompsound, Suroy, and Maggeroe. At the remote end of the last

† Leems, 169. 1 Scheffer, \* Anth. Jenkinson's Voy. in Hacklust, i. 311. 12, and Lin. Faun. Suec. 1. § Leems, 342.







NORTH CAPE.

is North Cape, high and flat at top, or what failors call table land \*. Multitudes of the small whales called the Grampus, are perpetually seen tumbling off this point, and from it styled the North Capers.

I shall take my departure from this extreme north of the continent of Europe, or rather from its shattered fragments, the isle of Maggeroe, and other islands, which lie off the coast, in lat. 71. 33. These are but the continuation of the great chain of mountains which divides Scandinavia, and finks and rifes through the ocean, in different places, to the Seven Sifters, in about lat. 80. 30, the nearest land to the pole which we are acquainted with.

Its first appearance above water, from this group, is at Cherie Island, in Cherie Island. lat. 74. 30. a most solitary spot, rather more than midway between the North Cape and Spitzbergen, or about a hundred and fifty miles from the latter. Its figure is nearly round: its furface rifes into lofty mountanous fummits, craggy, and covered with perpetual fnow: one of them is truly called Mount Misery. The horror of this isle to the first discoverers must have been unspeakable. The prospect dreary, black, where not hid with snow, and broken into a thousand precipices. No sounds but of the dashing of the waves, the crashing collision of floating ice, the discordant notes of myriads of fea-fowl, the yelping of Artic Foxes, the fnorting of the Walruses, or the roaring of the Polar Bears.

This island was probably discovered by Stephen Bennet in 1603 +, emploved by Alderman Cherie, in honor of whom the place was named. The anchorage near it is twenty and thirty fathoms. He found there the tooth of a Walrus, but faw none of the animals, their feafon here being past: this was the 17th of August. Encouraged by the hopes of profit, Bennet made a fecond voyage the next year, and arrived at the island the 9th of July; when he found the Walruses lying huddled on one another, a thousand in a heap. For want of experience, he killed only a few; but in fucceeding voyages the adventurers killed, in 1606, in fix hours time, seven or eight hundred; in 1608, nine hundred or a thousand in

<sup>\*</sup> See a view of these islands in Phil. Trans. vol. lix, tab. xiv.

<sup>+</sup> Purchas, iii. 566.

CXXXII

feven hours; and in 1610, above feven hundred. The profit, in the teeth, oil, and skins, was very considerable \*; but the slaughter made among the animals frightened the furvivors away, fo that the benefit of the business was lost, and the island no more frequented. But from this deficiency originated the commencement of the Whale-fishery by the English.

COALS.

LEAD.

SPITZBERGEN.

It is remarkable that this island produces excellent coals †; yet none are known nearer than the diocese of Aggerbuys, in the south of Norway, and there in very small quantities. Lead ore is also found, both in Cherie Mand and a little one adjacent, called Gull Mand 1.

About a hundred and fifty miles almost due north, is South Cape, north lat. 76. 30, the extreme fouthern point of Spitzbergen, the largest of the group of frozen islands which go under that name, or New Groenland. From this to Verlegan-book, north lat. 80. 7, the northern extremity, is above three hundred miles; and the greatest breadth of the group is from Hackluyt's Headland to the extreme east point of North Eastland, comprizing from 9. to near 24. east longitude. The shores are ragged and indented. A very deep bay runs into the east fide from fouth to north; and a large trifurcated one from north to fouth. Stat's Forland is a large island rent from the southern part of the east side. North Eastland is divided from the north-east side by the Waygat and Hinlopen straits, usually blocked up with ice, and fo shallow as to be, in one part, only three fathoms deep §. The long isle of King Charles lies parallel to the west fide. At the fouthern end is Black Point; the coast high, black, and inaccessible; in parts seeming soaring above the clouds; and the interjacent vallies filled with ice and fnow. Fair Foreland, or Vogel-book, is the northern headland, made by failors. And due north of it, at the western point of Spitzbergen, is the small lofty isle of Hackluyt's Headland, another object of the mariners fearch.

Moffen's Isle.

To the north of the great group is Moffen's Isle, in lat. 80, opposite to the mouth of Leifde bay. This island is very low, and suspected to be a new creation, by the meeting of the streams from the great ocean, rushing

<sup>\*</sup> Purchas, iii. pp. 560. 565. † The same, 564. & Barrington's Miscel. 35.

<sup>1</sup> The fame, 558. 564.

along

along the west side of Spitzbergen, and through the Waygat, and forcing up the gravelly bottom of this shallow part, where the lead touches the bottom at from two to five fathoms water, at half a mile from its western fide \*.

To the eastward of this is another low island, almost opposite to the mouth of the Waygat: it is remarkable for being part of the Basaltic chain, which appears in fo many places in the northern hemisphere. The columns were from eighteen to thirty inches in diameter, mostly hexagonal, and formed a most convenient pavement. The middle of the isle was covered with vegetables, Mosses, Sorel, Scurvy Grass, and Ranunculuses in bloom on July 30th. Of quadrupeds, the Rein-deer fattened here into excellent venison; the Arctic Fox; and a small animal larger than a Weefel, with short ears, long tail, and spotted with black and white, were feen. Small Snipes, like Jack Snipes; Ducks, then hatching; and Wild Geese feeding, helped to animate this dreary scene +.

The beach was formed of an antient aggregate of fand, whale-bones, and old timber, or drift-wood. Fir-trees seventy feet long, some torn up by the roots, others fresh from the axe, and marked with it into twelve feet lengths, lay confusedly fixteen or eighteen feet above the level of the fea, intermixed with pipe-staves, and wood fashioned for use; all brought into this elevated fituation by the fwell of the furious furges.

The appearance of drift-wood is very frequent in many parts of these high latitudes: in the feas of Greenland, in Davis's streights, and in those of Hudson; and again on the coasts of Nova Zemlja. I have only two places from whence I can derive the quantity of floating timber which appears on the coast of Nova Zemlja and these islands: the first is from the banks of the Oby, and perhaps other great rivers, which pour out their waters into the Frozen ocean. In the spring, at the breaking up of the ice, vaft inundations spread over the land, and sweep away whole forests, with the aid of the vast fragments of ice; these are carried off, rooted up, and appear entire in various places ‡. Such as are found marked into

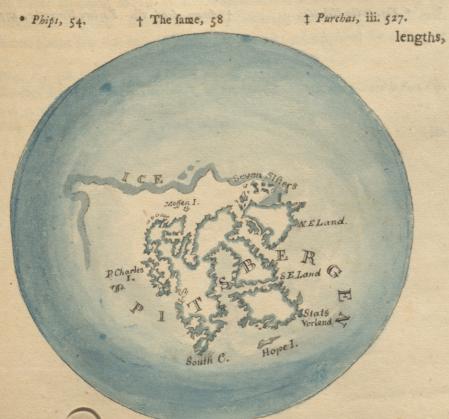
LOW ISLAND. BASALTIC.

PLANTS.

ANIMALS.

BIRDS.

DRIFT-WOOD



CXXXIV

SPILLBERGEN

lengths, together with pipe-staves, and other fashioned woods, are swept by the Norwegian sloods out of the rivers, on the breaking of a lentze, a misfortune which sometimes happens, to the bankruptcy of multitudes of timber-merchants. At such times not only the trees which are floating down the torrents, but the saw-mills, and all other places in which business is carried on, undergo the same calamity; and the timber, in whatsoever form it happens to be, is forced into the ocean, and conveyed by tides or tempests to the most distant parts of the north.

Let no one be staggered at the remoteness of the voyage: I have before shewn instances, but from a contrary course, from west to east. Part of the masts of the Tilbury, burnt at Jamaica, was taken up on the western coast of Scotland; and multitudes of seed or fruits of the same island, and other hot parts of America, are annually driven on shore, not only on the western side of Scotland\*, but even on those of more distant Norway; and Iceland.

The islands of the Seven Sisters, last of known land, lie due north from North Eastland: the extreme point of the most remote is in lat. 80. 42. They are all high primæval isles: from a high mountain on the farthest, the hardy navigators of 1773 had a fight of ten or twelve leagues of smooth unbroken ice to the east and north-east, bounded only by the horizon; and to the south-east certain land laid down in the Dutch maps. Midway between these islands and North Eastland, Lord Mulgrave, after every effort which the most sinished seaman could make to accomplish the end of his voyage, was caught in the ice, and was near experiencing the unhappy fate of the gallant Englishman, Sir Hugh Willoughby, who was frozen in 1553, with all his crew, in his unhappy expedition.

The scene, divested of the horror from the eventful expectation of change, was the most beautiful and picturesque:—Two large ships becalmed in a vast bason, surrounded on all sides by islands of various forms: the weather clear: the sun gilding the circumambient ice, which was low, smooth, and even; covered with snow, excepting where the pools of

VOYAGE BY LORD MUL-GRAVE, IN 1773.

\* Yoy. to the Hebrides.

+ Amæn. Acad. vii. Rarioro Norvegia, 477.

water

water on part of the furface appeared crystalline with the young ice \*: the small space of sea they were confined in perfectly smooth. After fruitless attempts to force a way through the fields of ice, their limits were perpetually contracted by its closing; till at length it beset each vessel till they became immoveably fixed †. The fmooth extent of furface was foon lost: the pressure of the pieces of ice, by the violence of the swell, caused them to pack; fragment rose upon fragment, till they were in many places higher than the main-yard. The movements of the ships were tremendous and involuntary, in conjunction with the furrounding ice, actuated by the currents. The water shoaled to fourteen fathoms. The grounding of the ice or of the ships would have been equally fatal: the force of the ice might have crushed them to atoms, or have lifted them out of the water and overfet them, or have left them suspended on the summits of the pieces of ice at a tremendous height, exposed to the fury of the winds, or to the risque of being dashed to pieces by the failure of their frozen dock t. An attempt was made to cut a passage through the ice; after a perseverance worthy of Britons, it proved fruitless. The commander, at all times master of himself, directed the boats to be made ready to be hauled over the ice, till they arrived at navigable water (a task alone of seven days) and in them to make their voyage to England. The boats were drawn progressively three whole days §. At length a wind sprung up, the ice separated sufficiently to yield to the pressure of the full-sailed ships, which, after laboring against the resisting fields of ice ||, arrived on the 10th of August in the harbor of Smeeringberg, at the west end of Spitzbergen, between it and Hackluyt's Headland.

It was the hard fortune of Lord Mulgrave, at this feason, to meet with one of those amazing shoals of ice which cover, at times, these seas, for multitudes of leagues. He made the fullest trial, from long. 2 to 21 east, and from about lat. 80. 40, as low as about 78. 30, opposed by a face of

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<sup>\*</sup> Phips Voy. tab. iv. + Same, tab. iii.

<sup>†</sup> See these distressful situations in tab. B. of Fr. Marten's Voyage, and Gerard le Ver, Voyage Nord, p. 19, edition 1606.

<sup>§</sup> Phips Voy. tab. v. | Same, tab. vi.

CXXXVI

ice without the left opening, and with all the appearance of a folid wall. It is well known, that the coasts of Sibiria are, after a northern tempest, rendered inaccessible for a vast extent, by the polar ice being set in motion. It is as well known, that a strong southern wind will again drive them to their former seats, and make the shores of the Frozen ocean as clear as the equatorial seas. A farther discovery on this side was denied to the noble navigator. His misfortune will for ever redound to his honor, as it proved his spirit, his perseverance, and a soul fertile in expedients among the greatest difficulties!

That navigators have gone into higher latitudes I cannot deny: the authenticated inflances only shew their accidental good fortune, in having the ice driven towards the pole, and in making a retreat before they were enveloped in the returning ice. The Russians, under vice-admiral Thit-shaghaf, within these very sew years, made an attempt to sail to the pole by the eastern side of Spitzbergen; but after suffering great hardships, returned without effecting any discovery. Curiosity has been amply satisfied: and I believe we may rest fully content with the common passage to India, on the conviction of this tract being totally impracticable.

The forms affumed by the ice in this chilling climate, are extremely pleafing to even the most incurious eye. The surface of that which is congealed from the sea-water (for I must allow it two origins) is flat and even, hard, opake, resembling white sugar, and incapable of being slid on, like the British ice\*. The greater pieces, or fields, are many leagues in length: the lesser, are the meadows of the Seals, on which those animals at times frolic by hundreds. The motion of the lesser pieces is as rapid as the currents: the greater, which are sometimes two hundred leagues long, and sixty or eighty broad †, move slow and majestically; often six for a time, immoveable by the power of the ocean, and then produce near the horizon that bright white appearance, called by mariners the blink of the ice ‡. The approximation of two great fields produces a most singular phoenomenon; it forces the lesser (if the term can be applied to

\* Grantz, i. 31.

+ The fame.

I Phips, 72.

pieces

ICE.

pieces of several acres square) out of the water, and adds them to their surface: a second, and often a third succeeds; so that the whole forms an aggregate of a tremendous height. These sloat in the sea like so many rugged mountains, and are sometimes sive or six hundred yards thick \*; but the sar greater part is concealed beneath the water. These are continually encreased in height by the freezing of the spray of the sea, or of the melting of the snow, which falls on them. Those which remain in this frozen climate, receive continual growth; others are gradually wasted by the northern winds into southern latitudes, and melt by degrees, by the heat of the sun, till they waste away, or disappear in the boundless element.

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The collision of the great fields of ice, in high latitudes, is often attended with a noise that for a time takes away the sense of hearing any thing else; and the lesser with a grinding of unspeakable horror.

The water which dashes against the mountanous ice freezes into an infinite variety of forms; and gives the voyager ideal towns, streets, churches, steeples, and every shape which imagination can frame †.

The Icebergs, or Glacieres of the north-east of Spitzbergen, are among the capital wonders of the country; they are seven in number, but at confiderable distances from each other: each fills the vallies for tracts unknown, in a region totally inaccessible in the internal parts. The glacieres of Switzerland seem contemptible to these; but present often a similar front into some lower valley. The last exhibits over the sea a front three hundred seet high, emulating the emerald in color: cataracts of melted snow precipitate down various parts, and black spiring mountains, streaked with white, bound the sides, and rise crag above crag, as far as eye can reach in the back ground ‡.

At times immense fragments break off, and tumble into the water, with a most alarming dashing. A piece of this vivid green substance has fallen, and grounded in twenty-four fathoms water, and spired above the surface

\* Ellis's Voy. 127. † Marten, 37. Crantz, i. 31. ‡ See the beautiful plate in Phips's Voy. tab. vii.

ICEBERGS.

fifty feet \*. Similar icebergs are frequent in all the Arctic regions; and to their lapfes is owing the folid mountanous ice which infefts those seas.

Frost sports also with these icebergs, and gives them majestic as well as most singular forms. Masses have been seen, assuming the shape of a Gothic church, with arched windows and doors, and all the rich tracery of that style, composed of what an Arabian tale would scarcely dare to relate, of crystal of the richest sapphirine blue: tables with one or more feet: and often immense stat-roosed temples, like those of Luxuor on the Nile, supported by round transparent columns of cærulean hue, stoat by the astonished spectator †.

These icebergs are the creation of ages, and receive annually additional height by the falling of snows and of rain, which often instantly freezes, and more than repairs the loss by the influence of the melting sun ‡.

The fnow of these high latitudes is as singular as the ice. It is first hard, and small as the finest sand \( \); changes its form to that of an hexagonal shield, and into the shape of needles, crosses, cinquesoils, and stars, plain and with serrated rays. Their forms depend on the disposition of the atmosphere; and in calm weather it coalesces, and falls in clusters \( \).

Thunder and lightning are unknown here. The air in summer is generally clear; but the sky loaden with hard white clouds. The one night of this dreadful country begins about Ottober 20th, O.S.; the sun then sets, and never appears till about the 3d of February \(\Pi\): a glimmering indeed continues some weeks after its setting: then succeed clouds and thick darkness, broken by the light of the moon, which is luminous as that in England, and shines without intermission during the long night \*\*. Such also is the case in Nova Zemlja ††. The cold, according to the English proverb, strengthens with the new year; and the sun is ushered in with unusual severity of frost. The splendor of that luminary on the snowy summits of the mountains was the most glorious of sights to the single

\* Phips, p. 70. † Marten, 43. ‡ The same. § The same.

|| The same, 51. ¶ Relation of Eight Englishmen, &c. Churchill's Coll. iv. 818.—

Relation of Seven Dutchmen, &c. Churchill, ii. 430. \*\* Narrative of Four Russian Sailors, 94. †† De Ver, trois Voy. au Nord. 22, b.

party

SNOW ..

SEASONS.

party who furvived to relate the account. The Bears stalk forth at the fame time from their dens, attended by their young cubs. By the beginning of March, the chearful light grows frong: the Arctic Foxes leave their holes, and the fea-fowls refort in great multitudes to their breedingplaces \*.

The fun, in the height of fummer, has at times heat enough to melt the tar on the decks of ships. It sets no more after the third of May, DAY AND NIGHT. O. S. Distinction of day and night is lost; unless it be fact what Fr. Marten alleges, that during the fummer night of these countries, the fun appears with all the faintness of the moon †. This is denied by Lord Mulgrave t. From August the power of the sun declines, it sets fast; in September day is hardly diftinguishable; and by the middle of October takes a long leave of this country; the bays become frozen; and winter reigns triumphant.

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Nature, in the formation of these islands, preserves the same rule which the does in other places: the highest mountains are on the western side; and they gradually lower to the east. The altitude of the most lofty, which has been taken by Lord Mulgrave, seems to have been one a little to the north of Black Point, which was found by the megameter to be fifteen hundred and three yards §: that of a hill on the little isle, the Norways, a small distance to the north-east of Spitzbergen, was two thousand four hundred feet: one on Vogel Sang, fixteen hundred and fifty; another, on the isle near Cloven Cliff, in about lat. 80, eight hundred and sixtyfive; a third, on that near Cook's Hole, feven hundred and eleven; and one on Hackluyt's Island, only three hundred and twenty-one |. These are the most northern lands which ever were measured; and the experiments favor the system of the decrease of the heights of the mountains toward the poles.

Earth and foil are denied to those dreadful regions: their composition is stone, formed by the sublime hand of Almighty Power; not frittered

\$ Voy. 71. \* Relation of Eight Englishmen, &c. 817, 818, 819. + Marten, 48. Phips's Voy. 33. | The same, on tab. viii.

BEARS.

Foxes.

Fowls.

MOUNTAINS.

into fegments by fiffures, transverse or perpendicular, but at once cast into one immense and solid mass; a mountain is but a single stone throughout, destitute of fiffures, except in places cracked by the resistless power of frost, which often causes lapses, attended with a noise like thunder, scattering over their bases rude and extensive ruins. The stone is granite, mostly grey and black; some red, white, and yellow. I strongly suspect that veins of iron are intermixed; for the meltings of the snow tinge the rocks frequently with a ferruginous ochre. A potter's clay and a gypsum are to be met with on the eastern part of the islands \*.

TEMPERATURE OF THE AIR.

In respect to the temperature of the summer air in Spitzbergen, Lord Mulgrave makes these remarks:—At the noon of July 20th, in lat. 80. 30. long. 3. 26. the mercury stood at 37; at midnight at 33½; and in lat. 80. 37, at noon, at 48. In lat. 80. 4. long. 2. 12, on July 16th, at noon at 49, at midnight at 48. This was the greatest degree of warmth felt in this arctic region during the voyage.

COALS.

Coals are also found in Spitzbergen, by means of which, seven people, left there accidentally, were enabled to bear the severity of the winter †.

VALLIES.

The vallies, or rather glens, of this country, are filled with eternal ice or fnow; are totally inacceffible, and known only by the divided course of the mountains, or where they terminate in the sea in form of a glaciere. No streams water these dreary bottoms; even springs are denied; and it is to the periodical cataracts of melted snow of the short summer, or to the pools in the middle of the fields of ice, to which the mariners are indebted for fresh water.

HARBOURS.

The harbours on the west side are frequent; penetrate deep into the island of Spitzbergen; and are the only channels by which the slight knowlege of the interior parts is attained. North Harbour is a scene of picturesque horror, bounded by black craggy alps, streaked with snow; the narrow entrance divided by an island; and at seasons affording a land-locked shelter to multitudes of ships.

TIDE AND SEA.

The tide at the Vogel Sang flows only four feet, and the flood appears

\* Narrative of Four Russian failors, 78, 89. + Barri

+ Barrington's Miscellanies, 16.

to come from the fouth. The depth of the sea is very irregular: near the shore it is generally shallow: off Low Island, only from ten to twenty fathoms; yet suddenly deepens to a hundred and seventeen: off Cloven Cliff from sourteen to twenty-eight, and deepens to two hundred. The shallows are usually on rock; the great depths on soft mud: the former I look on as submarine islands; but, from the small number of sish, the bottoms must be universally barren.

The grit worn from the mountains by the power of the winds, or attrition of cataracts of melted fnow, is the only thing which refembles foil, and is the bed for the few vegetables found here. This indeed is affifted by the putrefied *lichens* of the rocks, and the dung of birds, brought down by the fame means.

Even here Flora deigns to make a short visit, and scatter over the bases of the hills a scanty stock. Her efforts never rise beyond a sew humble herbs, which shoot, slower, and seed, in the short warmth of June and July; then wither into rest till the succeeding year.—Let me here weave a stender garland from the lap of the goddess, of such, and perhaps all, which she hath bestowed on a country so repugnant to her bounty. Let the salubrious Scurvy Grass, the resource of distempered seamen, be remarked as providentially most abundant in the composition.

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Let me first mention its only tree, the Salix Herbacea, or Dwarf Willow, described by Marten, p. 65, Phips, 202, which seldom exceeds two inches in height, yet has a just title to the name. The plants are, a new species of Grass, now named Agrostis Algida: Tillea Aquatica, Sp. Pl. 186. Fl. Suec. 156: Juncus Campestris, Fl. Sc. i. 186: Sibbaldia Procumbens? Fl. Lap. 1111.; Marten's Spitz. tab. H. sig. b: Polygonum Viviparum, Fl. Lap. 152; Marten's Spitz. tab. I. sig. a: Saxifraga Oppositasolia, Fl. Lap. 179, 222: Sax. Cernua, Sp. Pl. i. 577; Fl. Lap. 172: Sax. Rivularis, Sp. Pl. 577; Fl. Lap. 174: Sax. Cæspitosa, Sp. Pl. 578; Fl. Suec. 376: Sedum Annuum? Sp. Pl. 620; Marten's Spitz. tab. F. sig. c: Cerastium Alpinum, Sp. Pl. 628; Fl. Lap. 192: Ranunculus Sulphureus, Phips's Voy. 202; Mart. Spitz. 58: R. Lapponicus, Fl. Lap. 461, 503: R. Nivalis? 232; Mart. Spitz. tab. F. sig. a: Cochlearia Danica,

SOIL!

PLANTS.

Danica, Sp. Pl. 903; Fl. Suec. 578, 579: Coch. Grænlandic a, Sp. Pl. 904: Polytrichum commune, Fl. Lap. 395: Bryum Hypnoides, Fl. Lap. 396: Bryum Trichoides? Dill. 391; Musc. tab. 50. fig. 61: Bryum Hypnoides? Dill. Musc. 394, tab. 50, fig. 64, C: Hypnum Aduncum, Sp. Pl. 1592; Fl. Suec. 879, 1025: Jungermannia Julacea, Sp. Pl. 1601: Jung. like the Lichenastrum Ramosius, fol. tris. Dill. Musc. 489, tab. 70, fig. 15: Lichen Ericetorum, Fl. Lap. 936, 1068: L. Islandicus, 959, 1085: L. Nivalis, 446: L. Caninus, 441: L. Polyrhizos, Sp. Pl. 1618; Fl. Suec. 1108: L. Pyxidatus, Fl. Lap. 428: L. Cornutus, 434: L. Rangiferinus, 437: L. Globiferus, Lin. Mantiss. 133: L. Paschalis, Fl. Lap. 439: L. Chalybeisormis, Sp. Pl. 1623; Fl. Suec. 988, 1127: and the Fucus Saccharinus? Fl. Lap. 460; Mart. Spitz. tab. F. fig. 6.

It is matter of curiofity to trace the decrease of vegetables from our own island to this spot, where so few are to be found. They decrease with the numbers of herbivorous animals, and the wants of mankind. The following catalogue may not be quite just, but is probably pretty near the truth:

. Viguod red c		Perfect.		Imperfect.		Total.
England has		1,124	السارة	590	-	1,714
Scotland	00000	804	1	428	Daire :	1,232
The Orknies	Series 9	354	-	144	-	498
Holland		809	19	27.5	-	1,084
Sweden	T_00	933		366	-	1,299
Lapland		379	_	155	-	534
Iceland	1	309	1	233	-	542

Those of Spitzbergen are given above.

QUADRUPEDS.

The three terrestrial quadrupeds of these islands are confined here without possibility of migration. The Polar Bears pass the greatest part of the winter in a torpid state: appear in numbers at the first return of the sun, when, probably, they take to the ice, in quest of their prey, Seals, or dead Whales.

It is difficult to account for the means which the Foxes find for support,

as the island is destitute of birds during the whole winter; and, the bays being totally frozen up, they can find no subfistence from the sea. Perhaps they lay up provision for winter, on which they subsist till the arrival of the birds in March; at which season they have been observed first to quit their holes, and appear in multitudes \*. The Rein Deer have at all times their favorite lichen, which they can readily get at, by help of their palmated horns.

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Total

1,74

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WALRUSES and Seals are found in great abundance; the latter are often the object of chace, for the fake both of oil and fkins: the Russians make voyages on purpose. In 1743, four unhappy mariners of that nation were accidentally left on shore on North Eastland, called by the Russians Maloy Broun. Here three (the fourth died in the last year) lived till August 15th, 1749; when they were providentially relieved by the arrival of a ship, after paffing fix years, realizing in ingenious contrivances the celebrated English fable of Robinson Crusoe +.

In the year 1633, feven Dutch failors were left voluntarily on the western part of Spitzbergen, to pass the winter, and form their remarks. They were furnished with medicines, and every requisite to preserve life; but every one perished by the effects of the scurvy. In the next year, seven other unhappy men devoted themselves, and died in the same manner. Of the first set, it appeared by his journal, that the last was alive the 30th of April 1634; of the second, the life of the last survivor did not continue far beyond the 28th of February 1635 t. Yet eight Englishmen, left in 1630 in the same country, by accident, and unprovided with every thing, framed themselves a hut from some old materials, and were found by the returning ships, on May 28th, 1631, in good health |. Thus Russian hardiness and British spirit braved a climate, which the phlegmatic constitution of a Dutchman could not resist.

To meet with the Snow Bunting, a bird whose bill, in common with the rest of that genus, is calculated for granivorous life, is a kind of miracle. The country has a very scanty provision of feeds; the earth yields BIRDS.

I Churchill's Coll. + See the curious Narrative. \* Churchill, iv. 819. || The fame, iv. 808. 11. 415, 427.

Fish.

no worms, the air no infects; yet these birds are seen in slocks innumerable, and that chiefly on the ice around *Spitzbergen*: as it breeds early, possibly the old and young may have quitted the land, and collected on the ice at the time of the arrival of the ships.

Of cloven-footed water-fowl, the Purre alone is feen here.

Of web-footed, the Puffin Auk, the Razor Bill, the Little Auk, the Foolish Guillemot, the Black Guillemot, the Northern Diver, the Ivory Gull, the Herring Gull, the Arctic Gull, the Kittiwake, and the Greater Tern: these, with the Eider Duck, complete the short list of the seathered tribe of Spitzbergen. All these breed in the frost-rent cracks of the mountains, and appear even in these regions before the 16th of March \*.

The Whale is lord paramount of these seas; and, like a monstrous tyrant, seems to have terrified almost every other species of fish away. A few Coal Fish, Br. Zool. iii. N° 78, and two of the unctuous Suckers, N° 58, were the whole which were taken by Lord Mulgrave, after several trials by hook and by net. I can never imagine that the shallow, barren, and turbulent shores of the polar regions receive, as is popularly thought, the immense shoals of Herrings and Cod which annually repair to other more southern seas. Their retreat must be in the great depths before described †, where they are secure from the greatest storms, and probably enjoy a bottom luxuriant in plants and vermes.

The Whale, which inhabits these seas, and occasions the great resort of shipping, is the common species, Br. Zool. iii. N° 16. I have in that Work given its history; therefore shall add no more, than that during spring these animals keep near Greenland and the island of John Mayen; and towards summer they appear in the seas of Spitzbergen. The Fin Fish, Br. Zool. iii. N° 18, is another species: on their appearance, the Common Whale makes its retreat. The Beluga or White Whale, is seen here in summer, and prognosticates a good sishery.

The voyage to the usual station for the Whale-fishery, in these seas, is

\* Churchill's Coll. iv. p. 818.

+ See p. lxxvii.

from

from the eastern coast of Great Britain very short, the business concluded with much expedition. The following journal of the ship Yarmouth, of Yarmouth, is one among many other proofs I could offer:

-	-	O	7	
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March 19. left Yarmouth Roads.

24. anchored off Lerwick till

April 2.

9. fell in with ice.

11. in lat. 70. 50.

13. lat. 70. 25.

15. got fome feals.

23. lat. 72. 40.

May 2. lat. 73. 50.

3. lat. 75. 45.

12. lat. 75. 19.

May 14. killed the first whale.

17. killed the fecond.

20. lat. 75. 26.

31. third whale.

June 6. killed a bottle-nose.

11, lat. 75. 36.

14. lat. 76. 40.

18. killed more seals.

22. lat. 75. 12.

24. not being able with

fafety to get through the ice, toke departure home from lat. 74. 45. long. E. 10. and got into Yarmouth roads, July 11th.

The infects, vermes, and shells, of Spitzbergen, are very few. The Prawn, Br. Zool. iv. N° 28, and Sea Flea, N° 33, are found there. The Cancer Boreas, Ampulla, and Nugax, are three new species\*, added to the genus by the noble navigator.

Of the known species of vermes, the Ascidia Gelatinosa, Lin. Syst. 1087; the Ascidia Rustica, 1087, 5: the Lernea Branchialis, 1092: and the Clio Helicina, the simall Slime Fish of Marten, p. 141, tab. Q. sig. e: and the Clio Limacina, the Sea May Fly of the same, p. 169, tab. P. sig. 5: the Sipunculus Lendix, a new species, Phips, 194, tab. xiii. are sound here: the two last, the supposed food of the Common Whale, are met with in vast abundance †: the Medusa Capillata, the Asterias Papposa, Lin. Syst. 1098: Ast. Rubens, 1099: Ast. Pestinata, 1101; Br. Zool. iv. N° 70: Ast. Ophiura, 1100; Br. Zool. iv. N° 62: and Ast. Caput Medusa, Lin. Syst. 1101;

<sup>\*</sup> Phips's Voy. 190, &c. tab. xii.

<sup>†</sup> The fame, p. 194, 195.

Br. Zool. iv. N° 73. And of Shells, the Chiton Ruber, 1107: Lepas Tintinnabulum, 1168: the Mya Truncata, 1112; Br. Zool. N° 14: and Mytilus Rugosus; 1156; Br. Zool. iv. N° 72: the Buccinum Carinatum, a new species, Phips, 197, tab. xiii: Turbo Helicinus of the same, 198: the Serpula Spirorbis, Lin. Syst. 1265; Br. Zool. iv. N° 155: Serpula Triquetra, 1265; Br. Zool. iv. N° 156: and the Sabella Frustulosa, Phips, 198, complete the list of this class. Among the Zoophytes is the Millepora Polymorpha, Lin. Syst. 1285; and Millep. 1286; and a most curious new genus, discovered in the voyage, named the Synoicum Turgens, 199, tab. xiii: the Flustra Pilosa, Lin. Syst. and Fl. Membranacea, 1301, 3, 5: and, to conclude, that very curious Zoophyte, the soundation of the sossili Encrini, the Vorticella Encrinus, Lin. Syst. N° 1317, engraven in our Transactions, vol. xlviii. p. 305, and taken in lat. 79, off this coast: two of them being drawn up with the sounding-line, in 236 fathom water.

DISCOVERY OF SPITZBERGEN.

The priority of discovery of these islands has been a great matter of controverfy between the English and the Dutch. We clame it from the fight which Sir Hugh Willoughby is pretended to have had of it in his unfortunate voyage; but if what he faw, in lat. 72, was not a fog-bank, we must suppose it to have been either John Mayen's isle, or part of Greenland. The abfurd zeal of the English compilers makes Stephen Boroughs the second discoverer of this country, in 1556; but it is very certain, that he never got higher than lat. 70. 42, nor ever meant any discovery but a passage to the river Ob\*. It doubtlessly was first discovered by the Dutch Barentz; who, in his third voyage, in 1596, for the finding out the northeast passage, met with a land in lat. 79 1, and anchored in a good road, in eighteen fathom water. He afterwards failed as high as 80, and found two of the islands of which Spitzbergen is composed †. Embarrassed with ice, he took a fouthern course, and was soon after wrecked on the coast of Nova Zemlja: but the English and Dutch pursued the hint; and the Whale-fishery, which before was chiefly carried on by the Biscayeners in

<sup>\*</sup> Hackluyt, i. 274, 280.

<sup>†</sup> Trois Voyages au Nord, &c. par Girard de Ver, p. 14, 15.

the bay of St. Laurence, was commenced here with great success. So active were we, that our ships frequented the place within two years after its discovery.

The Rushans have of late attempted to colonize these dreadful islands. They have, for a few years past, sent parties to continue there the whole year; who have established settlements on the isle of Spitzbergen, at Croon Bay, King's Bay, Magdalena Bay, Smeerenburgh, and Green Harbour; where they have built huts, each of which is occupied by about two boats crews, or twenty-six men. They bring with them salted sish, rye-flour, and the serum or whey of sour milk. The whey is their chief beverage, and is also used in baking their bread. Each hut has an oven, which serves also as a stove; and their suel is wood, which they bring with them from Archangel. The huts are above ground, and most surprizingly warm; placed also in situations which may guard them as much as possible from the keenness of the northern wind.

Mr. Erskine Tonnach, surgeon of Dunbar (who, by the friendship of the worthy Mr. George Paton, of Edinburgh, favored me with this account) gives me the following particulars from his own knowlege:-" During our stay on the island, my curiosity prompted me to go on shore, that I might see the œconomy of these arctic settlers; and had an opportunity of feeing them dine; and though their fare appeared coarse, the dispatch they use, said a great deal for their health and appetite. They boil their fish with water and rye-meal: and this constitutes their diet during winter. In the fummer they live chiefly on fowls, or their eggs; but in general they forbear flesh, as the fasts prescribed by their religion are so numerous. They are dreffed in the skins of the animals they kill, which they use with the fur fide next to their bodies: their bedding is likewise composed of skins, chiefly of those of the Bear or Rein Deer. The skin of the Fox is the most valuable; but these are preserved as articles of commerce in their own country. They catch the Beluga, or white Whale, in nets, being conversant in this species of fishery; but are ignorant of that of the great Whale. They were very folicitous to get information on that subject; which I endeavoured to instruct them in, in return for the information they

Russian Co-

fo readily gave me. They are most excellent marksmen; but, what is peculiar, in presenting their piece, they do not raise it to their shoulder, but place the butt-end between their arm and their fide, fixing their eve on the object toward which they direct the barrel. I faw a Bear receive a confiderable shot: it astonished me greatly to see the animal apply great quantities of fnow to the part (which was bleeding freely) as if confcious of its styptic powers. It retreated with much slowness; but at short intervals looked behind, and, with much art, threw abundance of fnow with its hind-paws into the wound. Few of the Russians die from the severity of the cold, but are often frost-bitten, so as to lose their toes or fingers; for they are fo hardy as to hunt in all weathers. I naturally asked them, Had they a furgeon? They replied, 'No! no! CHRIST is our doctor!' They quit the island in September, and are privileged to leave the place by the 22d of that month, whether they are relieved by a fresh party from Rusha or not."-Let me remark, that the great exercise used by these volunteer adventurers; their quantity of vegetable food; their freshening their falt provision, by boiling it in water, and mixing it with flour; their beverage of whey; and their total abstinence from spirituous liquors—are the happy prefervatives from the fcurvy, which brought all the preceding adventurers, who perished, to their miserable end \*. The drink of these Russians was no other than Quass, the common beverage of their countrymen, and their celebrated anti-scorbutic liquor +.

HOPE ISLAND.

Before I quit Spitzbergen, let me add, that to the fouth of Statz island, and about ten leagues distant, is Hope island; of a singular form, nine leagues long, and only half a mile broad; divided into five very high mountains, gradually decreasing in height from the north-east ‡. On the north is good anchorage in twenty fathom water. The south side has a rocky bottom, and for some way to the east and west the sea is shallow.

<sup>\*</sup> See this subject amply treated by Doctor Aikin, in a Treatise on the success, with respect to the health, of some attempts to pass the winter in high northern latitudes.

<sup>+</sup> See Doctor Guthrie, in Ph. Trans. vol. lxviii. 627.

<sup>1</sup> Northern Pilot, page 59.



HOPE ISLAND.





TANNERBAY.

At the north-east end is a hollow, the haunt of Walrusses, and of myriads of Gulls and other sea-fowls, which darken the air with their numbers.

From the North Cape the coast of Finmark runs easterly: North-kyn or north-point is a distinguished promontory: between them are the three sisters, conic rocks of a grotesque appearance. From thence to Tana bay is high and craggy land, and a bold shore. The river Tana salls with a prodigious noise into the end of the bay, forming a noble cataract; like the Alten, it rises far in Lapland, and, after a long course through morasses, here has its discharge. Conoid mountains of surprizing heights distinguish the coast. Among the lesser rivers which feed it, some were samous for Beavers and Pearls. The Laplanders had therefore, in 1652, this river committed to their special care. The Tana is the most celebrated of any in the north for its Salmons; they are distinguished by their depth, shortness, and superior excellency. The sishery begins early in the spring, and, by the laws of Norway, must end in sourceen days after the feast of St. John the Baptist.

To the east of this is Wardoe, an island remarkable for having on it the most northern fortress in the world, and of unknown antiquity, built at the extremity of Norwegian Finmark. It commands a fine harbour, and probably was built to protect the fishing trade, the only object it could have in this remote place. It has caused an affemblage of about three hundred Norwegian cottages, the habitations of fishermen. Beyond the adjacent promontory, Domesness, the sea runs westward, and forms a deep bay. The river Pas is the boundary between the Muscovitish and Norwegian dominions. Kegor, or Fishers Island, stretches along the shore a little to the east of the mouth of the Pæs. A vast hollow sea is observed off this island, arising from the N. W. and N. E. winds. Let it be remarked, that the land takes a fouthern trend from the North Cape to the extreme of the White Sea; and the hills gradually decline in height, and the isles diminish in number. Kola, a vast river, opens a little to the east of Kegor, and is about a mile broad near the town of Kola, above seven leagues from its mouth. This, above two centuries ago, was the great resort of English and Dutch, who carried on a great trade in Salmon and fishCOAST OF

WARDHUYS

SIR HUGH WILLOUGHBY.

fish-oil \*. The oil is extracted from the livers of the Sharks, such as the Brugde, Haa-mer or Basking Shark, Br. Zool. III. Nº 41; the Haa-skiardin or White Shark, Br. Zool. III. No 42; and the Haa-brand or Blue Shark, N° 43. All these species having for a long time been taken for this purpose +, chiefly in the winter, and by the natives. Cod-fish, Holibuts, and most of the valuable fish of the German sea, abound as far as this high latitude. Even the Tunny is found to pursue the Mackarel into these cold feas ‡. The small isle of Kilduyn lies a little to the east of the Kola; and farther on the Sem-oftrowow, or feven islands; not far from which is the river Arzina, memorable for the fate of our illustrious countryman, Sir Hugh Willoughby, who, in May 1553, failed from Ratcliff, on the first voyage for the discovery by sea of Muscovia by the north-east, a country at that time scarcely known to the rest of Europe. In August he was separated from his conforts in this high latitude, and driven by tempelts into this part, where he was found, the spring following, by some Russian fishermen, with all his crew, frozen to death. His more fortunate confort Richard Chancellor, captain and pilot major, pursued his voyage, and renewed the discovery of the White Sea, or bay of St. Nicholas. The circumstances attending his arrival exactly refemble those of the first discoverers of America. He was struck with astonishment at the barbarity of the Russian inhabitants. They, in return, stood amazed at the fize of his ship; they fell down and would have kiffed his feet: and when they left him, fpread abroad the arrival of " a strange nation of singular gentlenesse and courtesse." He visited in sledges the court of Basilovitz II. then at Moscow, and layed the foundation of immense commerce with this country, for a series of years, even to the distant and unthought-of Persia.

It is fingular, that so very little has been preserved concerning that very illustrious character, Sir Hugh Willoughby. It appears that he was son of Sir Henry Willoughby, knight and banneret, by his third wise Elen,

daughter

<sup>\*</sup> Hackluyt, I. 416. † Torfæi, Hist. Norveg. I. 99. Muller, Zool. Dan. No 315, 316, 318. ‡ Leems Lapm. 326. Pontopp. II. 153.



RIVER DWINA.



ARCHANGEL.

daughter of John Egerton of Wrine Hall, in Cheshire, Efq. Sir Hugh married Jane, daughter of Sir Nicholas Strelley, of Strelley, in the county of Nottingham, Knt.; by her he had a fon named Henry, of whom I do not find any account. They were originally of Riseley, in Derbyshire; Sir Hugh is stiled by Cambden, of Riseley. Thoroton acds the same title to an ancestor of the same christian name, who died in 1491. They changed their refidence to Wollaton, in Nottinghamshire, the princely and venerable feat of Lord Middleton, who acquired it by the marriage of his ancestor, Sir Perceval Willoughby, with Brigitta, daughter and fole heirefs of Sir Francis Willoughby, founder of that noble pile. The portrait of the celebrated Sir Hugh is to be feen there; a whole length, in very large breeches, according to the fashion of the times, in a room hung with velvet, with a table covered with velvet, and a rich carpet. From his meagre appearance, the fervant tells you, that it represents the attitude, &c. in which he was found starved. This trivial account is all that is left of fo great a name.

From the river Arzina the land trends fast to the south-east. Swjatoż Nos, or the Holy Promontory, is the next of note: here commences a streight, which running to the south-west, opens in the Bioele More, or the White Sea; on the east side of the streight is the isle of Kandinos.

The Bioele More, or White Sea, may, with much propriety, be called a gulph; on the west side it is bounded by Russian Lapland, consisting of low hills; on the eastern by the slat province of Mesen. Its water is shallow, and its bottom muddy, occasioned by the violent floods during the meltings of the snows. These rush out of the entrance of the sea with a most terrible rippling, and almost deprive it of saltness. This was the Cwen sea of Octher, but had been forgotten by the English till it was again discovered by Chancellor.

The Norwegians traded and frequented this fee till the fourteenth century. They called the White Sea, Gandevic, and the land to the east Biarmaland, corrupted from Permia, the Russian name. If we may credit the histories formed from the songs of the antient Scalds, it appears that Permia was invaded, in the time of king Gormo, by Thorkil, a chieftain sent

WHITE SEA

on the adventure; and adventures he met with worthy of the magical pen of the author of the Arabian Nights\*. This preceded the time of OEther. We may depend more on the learned Icelander Torfaus, who relates, that in the time of king Hacquin, in the year 1224, two of his generals made an inroad into this country, and made a great flaughter among the Permians †. Whether to expiate that fault, or out of a zeal for Christianity, I cannot say, but the same prince built, for a number of Permians who had been expelled their country, a church in the isle of Tromp-sound, off Finmark. These he caused to be instructed in the Christian religion, and assigned them a place for their habitation ‡.

The Dwina, or double river, discharges itself into the bottom of the White Sea. It takes its name from its being formed by the Suchana and the Yug. It is navigable to a great distance, even to Wologda, in lat. 59. 15, a thousand versts, or above six hundred and sixty-six miles by water. The isles of Podesemskoe form the Delta of this great river §. The channel on each fide is thirty miles long, and difficult of navigation; their depth from three to eight fathom. A narrow channel, passable by Russian lodies, or small vessels, runs through the middle of the Delta. Archangel stands in lat. 64. 35, on the banks of the eastern channel, at its extremity, but may be approached by either. Archangel arose from a castle built by Basilovitz II. to protect the increasing trade brought there on the difcovery of the White Sea by the English; for ships of all nations resorted to this port, even as far as from Venice. Its exports, in 1655, amounted to three hundred and thirty thousand pounds |. Peter the Great, intent on aggrandizing his creation, Petersburgh, prohibited all trade to Archangel, except from the neighboring provinces. Still its exports of tar were considerable: in 1730, to the amount of forty thousand lasts, of eleven barrels each ¶. As late as the year 1784, a hundred and twenty ships failed out of this port. The ships built here are made entirely of deal, and are of a vast size and height. By means of the Dwina it re-

TRADE OF ARCHANGEL.

> \* Saxo Gramm. lib. viii. p. 161. † Hist. Norweg. 164. † The same. § Chart of the northern navigation. || Anderson's Diet. ii. 97. ¶ The same, 328.

> > ceives

ceives various articles of commerce from the interior parts, and its exports are, to this day, prodigious. It fends, during winter, great quantities of the Nawaga, a small species of three-finned Cod\*, to Petersburgh, frozen, as Kola does Herrings in the same state.

There is also found in this sea a new species of Anarrhicas or Wolf sish. It grows to the length of three seet. The teeth are numerous, and resemble canine teeth; the body is covered with numerous round spots of a pale brown colour, with very large ones of a dusky hue. It was discovered by Mr. Laxman, in the Ast. Acad. Petrop. 1781, p. 271. tab. vi. The Russians call it Kusatcha.

The White Sea is every winter filled with ice from the Frozen ocean, which brings with it the Harp Seal, and the Leporine frequents it during fummer. Whoever furveys the maps of the provinces between this fea and the gulphs of Bothnia and Finland, will observe them to be more occupied by lakes than land, and be at once satisfied of the probability of the once-insulated state of Scandinavia. As soon as these streights were closed, the White Sea lost its depth, and is at present kept open only by the force of its great rivers.

On the eastern side of the entrance into the streight, is the isle of Kandinos, often spoken of by our early navigators in their way to the Waygatz, in their search for a north-east passage. Between it and the main land is a very narrow channel. After doubling the cape of Kandinos, the sea forms two great bays. A considerable part of the shore to the east consists of low sandy hills †. Into the most remote bay slows, in lat. 68. 30, by many mouths, the vast river Peczora, a place of great trade before the time of Peter I. Thousands of Samoieds and other savages resorted to the town, with seathers of White Grous, and other birds; Sables, and the most valuable surs; skins of Elks and other Deer; the oil from the Walrus; from the Beluga; and different sort of sish ‡. Here was, in 1611, a great sishery of Beluga: above sisty boats, with three men each, were employed to harpoon them ¶. The

\* Nov. Com. Petrop. xiv. 484. tab. xii. Its length does not exceed eleven inches.

† Hackluyt, i. 277. † Purchas, i. 546. || The same, 549

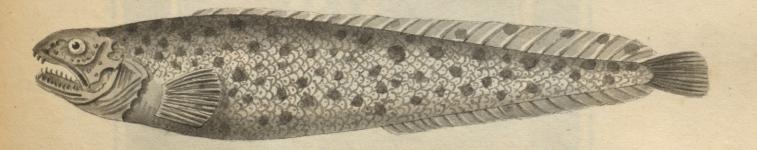
entrance

. || The fame, 549.

New Wolf Fish.

KANDINOS.

RUSATCHA.



entrance into the Peczora is dangerous, by reason of a sandy shoal. The tide rises there only sour feet.

SAMOIEDS.

Fran Wols

The coasts east of Archangel, even as far as the river Ob, are inhabited by the Samoieds; a race as short as the Laplanders, more ugly, and infinitely more brutalized; their food being the carcases of horses, or any other animals. They use the Rein Deer to draw their sledges, but are not civilized enough to make it the substitute for the Cow. These are in fact the Hottentots of the north.

Their country was that of the Beormas, the antient Permia, before-mentioned, still retained among the titles of the Emperors of Russia. The Nortmans and Sweens had great intercourse with them through the Neva and the lake Ladoga. Their capital was Tcherdyn, seated in about lat. 60. 25, on the river Kolva. It was the great northern emporium of very early times. An immense traffic was carried on by the merchants, even from the remote India. They came down the Oxus into the Caspian sea, thence up the Volga, and from that river into the Kama, which receives into it the Kolva\*, on which Tcherdyn, now an inconsiderable place, is seated. The Biarms purchased the merchandize from these foreigners, and conveyed it up the Peczora to the most distant people of the north: and after obtaining furs in exchange, returned and delivered them at Tcherdyn to the foreign merchants.

Ladoga, which stood on the lake of the same name, was another vast emporium, till it was deserted, after the rise of Novogrod, seated on the lake Ilmen, at the mouth of the Wolchow, which runs into the Ladoga lake. This had its amazing season of wealth and prosperity. Both extended their trade into the Baltic as far as Wishy: both were in their day the staple of the goods of the East. In the antient burial-places at Ladoga were found proofs, in the coins of Syria and Arabia; there were also found coins of Greece and Rome; even at Teherdyn, coins of the Arabian caliphs have been discovered.

The communication with the western world was not less ready, and might have been effected by the same means, that of rivers. From La-

\* Strahlemberg, 110. Nichols Ruff. Nations, i. 176.

+ Strahlemberg, 110.

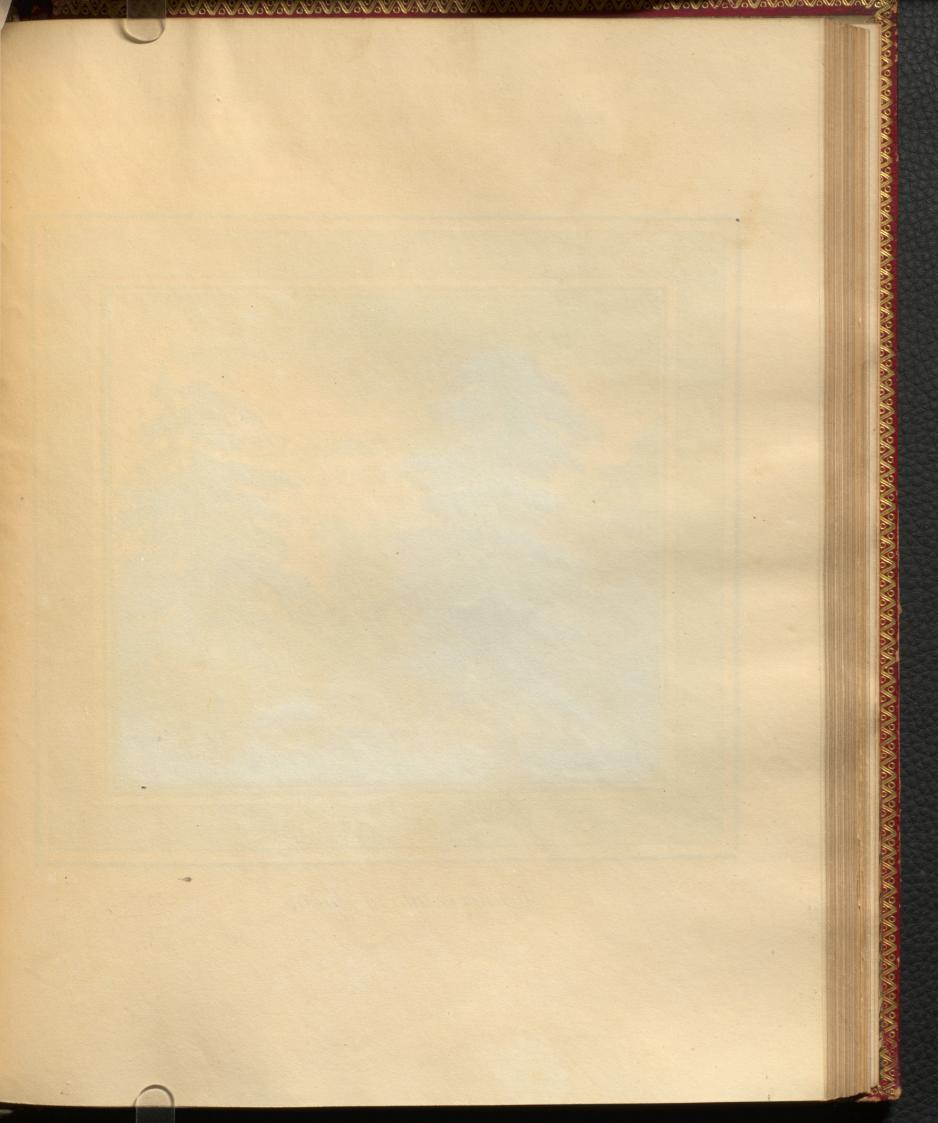
### MEANS OF EXTENSIVE INTERCOURSE.

doga was a passage down the great river Wolchow to Novogorod and the lake Ilmen. At the bottom is the river Pola, which rifes in a small lake, and within a small distance of others almost contiguous to the Volga. By means of voloks, or what the Americans call carrying-places, a communication with that river is formed. The Volga might be the channel from both the eastern and western world. That river is navigable far beyond Twer, and to a small distance from the Boristhenes, or Dnepr; down which was a quick paffage into the Euxine or Black fea, and from thence to Syria, Greece, and Rome itself. The carrying-places, either from river to river, or to avoid the cataracts of the Dnepr, might be easily furmounted, for we are told that in the Palus Mæotis, part of this very fea, light boats, covered with leather, were used; not only on account of the shallowness of the Palus, but for the passage up the Volga, the Boristbenes, and other great rivers, which, like those of America, would be impervious by any other fort of vessels. Thus there was a communication practicable with the barbarous nations of the north, from the colonies which the Egyptians, the Greeks, and the Romans had, in their different periods, on the Euxine sea; and for the protection of which the Romans kept on it a fleet of forty fail. It was through these channels the ancients received the little knowlege they had of the artic regions.

# ASAMOIED.



nearly of the real energy and the transport the brenefit of and the work being of and spilling a many and a second process of the second party and an electrical section are a





Manner of taking Sables.

### ASIA,

Which has most natural and strongly-marked limits, commences to the east of the Peczora. Here appear the Werchoturian mountains, or famous URALLIAN Urallian chain, which begins distinctly (for it may be traced interruptedly CHAIN. farther fouth) near the town of Kungur, in the government of Kasan, in lat. 57. 20, runs north, and ends opposite to the Waygatz streight, and rises again in the isle of Nova Zemlja. The Russians also call this range Semennoi Poias, or the Girdle of the world, from a supposition that it encircled the universe. These were the Riphæi montes: Pars mundi damnata a natura rerum, et densa mersa Caligine \*, of which only the southern part was known to the antients, and that so little as to give rise to numberless fables. Beyond these were placed the happy Hyperborei, a fiction most beautifully related by Pomponius Mela +. Moderns have not been behind-hand in exaggerating

\* Plinii Hift. Nat. lib. iv. c. 12.

+ In Afiatico littore primi Hyperborei, super aquilonem Riphaosque montes, sub ipso siderum cardine jacent; ubi fol non quotidie, ut nobis, sed primum verno Æquinoctio exortus, autumnali demum occidit; et ideò fex mensibus dies, & totidem aliis nox usque continua

ing feveral circumstances relative to these noted hills. Ysrand Ides, who crossed them in his embassy to China, afferts that they are sive thousand toises or fathoms high: others, that they are covered with eternal snow. The last may be true in their more northern parts; but in the usual passages over them, they are free from it three or sour months.

ITS HEIGHT.

The heights of part of this chain have been taken by M. l' Abbè d' Auteroche; who, with many affurances of his accuracy, fays, that the height of the mountain Kyria, near Solikamskaia, in lat. 60, does not exceed four hundred and feventy-one toises from the level of the sea, or two hundred and eighty-fix from the ground on which it ftands\*. But, according to M. Gmelin, the mountain Pauda is much higher, being seven hundred and fifty-two toises above the sea +. From Petersburg to this chain is a vast plain, mixed with certain elevations or platforms, like islands in the midst of an ocean. The eastern side descends gradually to a great diffance into the wooded and moraffy Sibiria, which forms an immense inclined plain to the Kry Sea. This is evident from all the great rivers taking their rise on that side, some at the amazing distance of lat. 46; and, after a course of above twenty-seven degrees, falling into the Frozen ocean in lat. 73. 30. The Yaik alone, which rifes near the fouthern part of the eastern side, takes a fouthern direction, and drops into the Caspian sea. The Dwina, the Peczora, and a few other rivers in European Russia, shew the inclined plane of that part: all of them run to the northern sea; but their course is comparatively short. Another in-

continua est. Terra angusta, aprica, per se fertilis. Cultores justissimi, et diutiùs quam ulli mortalium & beatiùs vivunt. Quippe sesso semper otio læti, non bella novêre, non jurgia; sacris operati, maximè Apollinis; quorum primitias Delon missise, initio per virgines suas, deinde per populos subinde tradentes ulterioribus; moremque eum diu, & donec vitio gentium temeratus est, servasse referuntur. Habitant lucos sylvasque; et ubi eos vivendi satietas magis quam tædium cepit, hilares, redimiti sertis, semet ipsi in pelagus ex certa rupe præcipiti dant. Id eis sunus eximium est. Lib. iii. c. 5. This was the same with the Ættestupa of the votaries of Odin, See p. cix. only the Hyperboreans preferred a watery death to that of dashing themselves to pieces down an inland precipice.

\* Voyage de la Siberie, ii. 605.

+ Preface to Flor. Sibir. i. 54.

clination

clination directs the Dnieper and the Don into the Euxine, and the vast Volga into the Caspian Sea.

The Altaic Chain, its fouthern boundary, which begins at the vast ALTAIC CHAIN. mountain Bogdo, passes above the head of the Irtisch, and then takes a course rugged, precipitous, cloathed with snow, and rich in minerals, between the Irtisch and Ob; then proceeds by the lake Telezkoi; after which it retires, in order to comprehend the great rivers which form the Jenesei, and are locked up in these high mountains; finally, under the name of the Saianes, is uninterruptedly continued to the lake of Baikal\*. A branch infinuates itself between the sources of the rivers Onon and Ingoda, and those of Ichikoi, accompanied with very high mountains, running without interruption to the north-east, and dividing the river of Amur, which discharges itself into the east, in the Chinese dominions, from the river Lena and lake Baikal. Another branch ftretches along the Olecma, crosses the Lena below Jakoutsk, and is continued between the two rivers Tungusca to the Jenesei, where it is lost in wooded and moraffy plains. The principal chain, rugged with sharppointed rocks, approaches and keeps near the shores of the sea of Ochotz, and passing by the sources of the rivers Outh, Aldan, and Maia, is distributed in small branches, which range between the eastern rivers which fall into the Icy Sea; besides two principal branches, one of which, turning fouth, runs through all Kamtschatka, and is broken, from the cape Lopatka, into the numerous Kurile isles; and to the east forms another marine chain, in the islands which range from Kamtschatka to America; most of them, as well as Kamtschatka itself, distinguished by fierce vulcanoes, or the traces of vulcanic fires. The last chain forms chiefly the great cape Tschutschi, with its promontories and rocky broken shores .- I have so far pillaged the labors of my friend +, to trace the boundaries of the vast region which has so amply furnished my Zoological part.-To that, and the Table of Quadrupeds, I refer the feveral peculiarities of their fituations.

\* Observations sur la Formation des Montagnes, par P. S. PALLAS, p. 18.

+ Doctor PALLAS.

Y 2

At

How DISTRI-BUTED.

At the northern end of the great Urallian chain, is the Waygatz streight, which cuts them from Nowyia Zemlja, Nova Zembla, or the New Land. The passage is narrow, obstructed by islands, and very frequently by ice. The flux and reflux is here uncertain, by reason of the winds; but the tide has been observed to rise only four feet\*: the depth from ten to sourceen fathoms. It was discovered by Stephen Boroughs, in 1556; and the navigation was often attempted by the Dutch, in hopes of a passage that way to China. Continual obstructions from the floating ice bassled their designs, and obliged them to return.

Nova ZEMLJA.

Nova Zemlja consists of five islands; but the channels between them are always filled with ice †. It is quite uninhabited, but is occasionally frequented by the people of Mesen, who go there to kill Seals, Walruses, Artic Foxes, and White Bears, the sole animals of the place, excepting a few Rein Deer. Attempts have been made to find a way to the East Indies to the north of it; but with equal bad success as through the Waygatz. Barentz just doubled the eastern end in 1596; suffered shipwreck there with his crew; and passed there a most miserable winter, continually besieged by the Polar Bears: several of the crew died of the scurvy or excess of cold; the survivors made a vessel of the remains of their ship, and arrived safe in Europe the following year; but their great pilot sunk under the satigue ‡.

The fouthern coasts of these islands are in a manner unknown. Between them and the continent is the Kara sea, which forms a deep bay to the south, in which the tide has been observed to flow two seet nine inches. Fishing people annually come here from the Peczora through the Waygatz, for the sake of a smuggling trade in surs with the Samoieds of the government of Tobolski. In the reign of the Empress Anne, attempts were made to double the great cape Jalmal, between the gulph of Kara and that of the Ob; one of which (in 1738) only succeeded, and that after encountering the greatest difficulties. Had the discovery

\* Hackluyt, i. 282. related by De Veer.

+ Doctor Pallas. 

† See this curious voyage, as

| Pallas. 

† Coxe's Ruffian Discoveries, 306.

of Sibiria depended on its approach by fea, it might have still remained

In the gulph of Kara are taken the Salmo Kundsba, PALLAS Itin. III. No. 46; the Nawaga, a fort of Whiting; Salmo Autumnalis or Omul; Pleuronettes Glacialis; and the Cottus Scorpius, Rumsha, or Father-lasher, Br. Zool. III. No. 99.

The mouth of the Ob lies in a deep bay, which opens into the Icy Sea, THE RIVER OB. in lat. 73. 30. This is the first and greatest of the Sibirian rivers: it rises from the Altine, or, as the Russians call it, the Telezkoi, a large lake fituated in about lat. 52, has a gentle courfe through eight hundred leagues of country, and is navigable almost to its source\*, and abounds with fish. It is fed with multitudes of rivers: among others, the great river Irtisch falls into it in lat. 61. At the junction the Ob divides into two channels, and runs separated for a great space; unites again, and near Beresow its stream is broken by numbers of small isles. Near Obdoroskoe Offrog it takes an eastern course, and discharges itself into the great bay of the fame name.

The Irtisch has also a most extensive course. It rises in lat. 47, runs IRTISCH. through the great lake Taifan, takes a north-westerly direction, and, among multitudes of other rivers, receives, in lat. 58. 12, the great Tobol; and on the forks of these two rivers, on the northern side of the Irtisch, stands Tobol, the present capital of Sibiria. The banks of the Irtisch and Ob, and other Sibirian rivers, are, in many places, covered with immense forests, growing on a soft soil; which being torn up by the refiftless force of the vast fragments of ice brought down by the torrents occasioned by the melting of the snows, are conveyed into the Icy and other feas, and form the drift-wood I have before spoken of. The channel of the Ob, from its fource to the Ket, is stony: from that river to the mouth it runs through a fat land. After it has been frozen fome time, the water grows foul and fetid. This is owing to the vaft Annual Steness

OF THE OB.

\* Gmelin Introd. Fl. Sib. vii. xxx. By Leuca he seems to mean a Verst, of which 1042 make a degree. See cxxiii. and Mr. Coxe's Russian Discoveries, Introd. xiii.

moraffes

morasses it in some places goes through, to the slowness of the current, and to the earth-salt (erdsaltz) with which some of the rivers which run into it are impregnated. The fish therefore, in certain seasons, shun the waters of the Ob, and resort in vast shoals to the mouths of those rivers which rush into it from stony countries, and in such places are taken in great abundance. This stench continues till the river is purified in the spring by the melting of the snow. The Taz, another river which empties itself into the east of the gulph of Ob, is liable to the same impurity.

JENESEI RIVER.

The Jenesei next succeeds. Mr. Gmelin, as a naturalist, would consider this as the boundary between Europe and Asia. From its eastern banks every thing puts on a new appearance: a certain new and unusual vigour reigns in every thing. The mountains, which to the westward, as far as the Urallian chain, appeared only scattered, now take sull possession, and are interspersed with most beautiful vallies. New animals, such as the Argali and Musk; Garlic Rat, Hist. Quad. II. N° 315; Mus Liriophagus, Pallas MS. Cat.; the Hare-tailed Rat, Hist. Quad. II. N° 320. Perhaps the Oeconomic, N° 313. and the Pygmy Shrew, N° 344. begin to shew themselves, as does the Ibex, after the long interval of the vast tract between this country and the Carpathian mountains.

Many new birds also appear: such as the Strix Barbata, Pallas MS. Latham, Suppl. N° 43; White-browed Blackbird, Turdus Leucopbrys, Pallas Itin. III. 694. Latham, III. 31; Red-faced Flycatcher, Muscicapa fronte rubra, Pallas MS. Latham, III. 351; Sibirian Whinchat, Motacilla Montanella, Itin. III. 695. and MS.; M. Calliope, Itin. III. 697. and MS.; Ruby-throat, Art. Zool. which sings most exquisitely in the middle of the night; M. Cyanura, Itin. II. 709. Latham, IV. 459; White-winged Lark, MS. Alauda Calandra, Itin. II. 708; Black Pigeon, MS. lesser than the Turtle Dove; Long-tailed Grosbeak, MS. Loxia Sibirica, Itin. II. 711; Pine Bunting, Emberiza Pithyorus, Itin. II. 710. Latham, III. 203; Cia. Emb. Cia. MS. Latham, III. 191; and, finally, the Falcated Duck, Art. Zool. Itin. III. 701.

Many

Many European plants disappear, and others, peculiar to Asia, gradually mark the alteration \*. Such are the Robinia Pygmæa, Flora Ross. 71. tab. xlv. Rob. frutescens-69. xliii. Spiraa Trilobata-33. xvi. Sp. Salicifolia-36. xxi. Rhododendron Dauuricum-47. xxxii. Balfamifera-67. xlvii. and numbers of others. I am inclined to think, that the commencement of Afiatic plants is about the Ob, for I observe that the Robinia caragana, Fl. Sib. iv. 17. and a few more, begin to shew themselves on the eastern side of that vast river; but, in fact, they appear in force only beyond the Jenesei.

This river is scarcely inferior to the Ob. It rifes from the two rivers Ulu-kem and Bei-kem, in north lat. 51. 30, long. 111, and runs due north into the Icy Sea, forming a mouth filled with multitudes of islands: its channel for the most part stony or gravelly: its course swift: its waters most pure, limpid, and wholesome: its fishes and birds most delicate: its banks, especially the eastern, mountanous and rocky; but from the fort of Saiaenes to the river Dubtches, rich, black, and cultivated. It is fed by numbers of rivers. The Tungusca, and the lower Tungusca, are the most noted.

The first rushes, near Irkutz, out of the great lake Baikal, under the name of the Angara, between two vast rocks, natural, but with all the appearance of being cut through by art, and tumbling over huge stones in a bed a mile wide, and for a space nearly the same +. The collision of the waters against the stones is attended with a most dreadful noise, which, with the magnificence of the scenery, forms the most awful approach imaginable to this facred water. A deity prefided over the lake; and no one dared call it by that degrading name, for fear of incurring the penalty of the difrespect. Instead of lake, the borderers style it the Holy Sea; and its vast mountains, the Holy Mountains. St. Nicholas presides over them, and has here his chapel. The mountains are cloathed with forests: of large trees on the lower parts; with fewer and leffer as they gain the heights. These are the retreat of the Wild Boar, and variety of game.

LAKE BAIKALS

+ Bell's Travels, 8vo. ed. i. 279. \* Pref. Fl. Sibir. xliv.

SEALS.

Its depth of water is very great: its clearness perfect: free from islands, except the Olebon and Saetchia: navigable in all parts: and in storms, the waves like those of the sea. Its length is a hundred and twenty-sive common leagues: its breadth from sour to seven\*. The Common Seal abounds in this lake. It is a small variety, but so fat as to appear almost shapeless. These animals must have been here aboriginally; for, besides the vast distance from the sea, their passage must have been entirely obstructed by the cataracts which intervene.

Another creation of plants and animals appears about this lake, especially the Trans-Baikal, or farther side, as there did on the borders of the Jenesei. The Two-bunched Camel, Hist. Quadr. I. p. 120. is first found there; the Chinese Antelope, Hist. Quadr. I. N° 36. inhabits the mountains about the Selinga; the Once—I. N° 157; the Baikal Hare—II. N° 245; Stone Rabbet or Alpine Hare—N° 248; the Ogotona Hare—N° 249; the Caraco Rat—N° 299; Rock R.—N° 312; Baraba R.—N° 330; the Blind R.—N° 331; the Daurian R.—N° 332; the Sibirian Jerboa (the middle species)—292, and the Black Squirrel—p. 407, are not to be met with till you arrive at the Trans-Baikal region.

Neither is there a less alteration in the feathered tribe: numbers of fouthern birds terminate in those parts. The Vultur Barbatus, Bearded V. of Edw. breeds in lofty mountains. The Corvus Dauuricus, Pallas Itin. I. 694. Latham, I. 376; the Corvus Cyaneus—III. 694. Latham, I. 394; the Sturnus Dauuricus—III. 695. Latham; the Turdus fuscus, and Ruscollis—III. 694. Latham, III. 31; Turdus pallidus—MS. Cat. Latham, III. 32; that rival in melody to the Nightingale, the Muscicapa Aedon;—III. 695. Latham, III. 32; Emberiza fucata—III. 698; Emb. pusilla—III. 697; Emb. Chrysophris—III. 698; Emb. Rustica, the Sibirian Reed Sparrow—III. 698; Emb. Spodo-cephala—III. 698; Fringilla Rosea—III. 629; White-tailed Fly-catcher, MS. Cat; Dun Fly-catcher, MS. Cat.—are all inhabitants of this tract.

\* Voyage en Siberie, i. 213.

+ A Thrush, and the smallest of the genus.



Multitudes of water fowls frequent this lake, or its neighborhood. Of the scarcer fort is the Tringa Salina, that haunts the falt lakes of Trans-Baikal: as does the Tringu Falcinella. The Anas Rutila, Nov. Com. Petrop. xiv. 579; and the Anas Glocitans, my bimaculated Duck, Br. Zool. II. N° 287, are the two rarer species of the web-footed class.

When the ice breaks in lake Baikal, the Salmo Oxyrbynchus, and the Lenki, lay their spawn in the fandy shores, but in summer retire into the deep water.

The Callionymus Baikalensis is a fish peculiar to the lake; is about nine inches long, of a most fost and tender texture, and slowing with oil: it is never caught in nets, or any way alive. It inhabits the vast subaqueous caverns of the lake, at vast depths, particularly near the northern shores, in places three or four hundred fathoms deep. They are never feen but after they have been disturbed by the violent summer storms, when they are feen floating on the furface, or flung in vast heaps on the shore, particularly on the Pofol/kifb, and the mouth of the Selinga. The people extract oil from them, which they fell to the Chinese.

The Salmo Autumnalis or Omul, is taken in the lake in June and July, in its passage still farther south.

Vast quantities of the skins of the Onifcus Trachurus are seen floating on the furface of lake Baikal; a species of insect which abounds on the rocky shores, and is the food of the Salmo Lenok and Sig +.

A new vegetable world also begins to shew itself on passing this lake. The species continue probably fouthward till they are cut off by the sterile fands of the great desert of Gobi. Among them I enumerate the Prunus Sibirica, Flora Ross. 15. tab. viii; Pyrus Baccata-23. x; Spiraa Thalictroides - 34. xviii; Sp. Alpina - 35. xx; Sp. Palmata - 40. xxvii; Betula Dauurica-60. xxxix; Bet. Fruticosa-63. xl; Robinia Altagana -68. xlii; Rob. Ferox-70. xliv; Ulmus Pumila-76. xlviii; and Rhododendron Dauuricum, Sp. Pl. I. 562; Amm. Ruth. 181.

\* A Thrush, and the smallest of the genus. App. Nº 54.

+ PALLAS Itin. iii, 293.

This





DAUURICUM.

This region is wholly deftitute of Marble, and other calcareous stones; whereas they abound in such parts of Russia and Sibiria, where the ground is lower. No petrifactions of shells, or crustaceous animals. And the metallic veins are here found near the surface of the earth, never sunk deep into its bowels\*.

All this region, and even the defert of Gobi, are most surprizingly elevated above the surface of the rest of the earth. It is proved by the great cold that reigns in these comparatively low latitudes; by the Alpine plants of Europe growing even in the low vallies of these regions; and by vast rivers which rise from every side; slow into the Icy Sea, that of Ochotz, of China, and of India, and water, by far, the greatest part of the vast continent of Asia.

I am got eight degrees beyond my plan: but I could not refift the description of this prince of lakes and its environs.

The Angara runs nearly due north for a great way; then assumes the name of Tungusca, turns westward, and joins the Jenesei in lat. 58. The lower Tungusca rises far to the south-west, approaches very near to the Lena, and falls into the Jenesei in lat. 65. 40. Above its junction stands the town of Mangazea, celebrated for its great fair of furs of every kind, brought there by the furrounding pagans, who pass the long winter in the chace. Many Russians have also migrated, and settled here for the same purpose, and draw great profit from the spoils of the animals. This neighborhood is, during fummer, the great refort of multitudes of species of water-fowl. About the feast of St. Peter, here Flora begins to disclose her beauties: the country is covered with the most beautiful Sibirian flowers; many of which enliven the gardens of our more fouthern climate. The fowls now exult, and unite in emitting their various notes; none particularly melodious in themselves, but together form a concert far from disagreeable ‡; perhaps from the hearer being conscious that they are the notes of happiness, at the enjoyment of the reviving rays of the fun.

Town of Man-GAZEA.

\* Fl. Sib. Vol. I. Praef. P. lix. † Pallas Obs. sur la formation des Montagnes, 21. † Voyage en Siberie, ii. 56.

In antient times, Mangazea, or, as it was then called, Mongozey, and Mongolmy, was feated near the mouth of the Taz\*; but was removed by the inhabitants into a milder climate, i.e. just to the south side of the Artic circle. Before that period it was a place of great trade, and was eagerly visited from Archangel, through a complication of difficulties, by fea, by rivers, by land, by rein-drawn sledges, and by drawing the vessels from river to river over frequent carrying-places +. These tracts were certainly Le pais presque inaccessible à cause de boues, & de glaces, and, Le pais de tenebres, spoken of by Marco Polot, as the regions from whence the Chams of Tartary procured the richest furs.

From the mouth of the Jenesei, the immense promontory Taimura CAPE TAIMURA. stretches farthest north of all this region into the Icy Sea, nearly into lat. 78. To the east of it, the Chatunga, Anabara, and Olenek, rivers little known, fall into the fea, and have before the mouth of each a confiderable bay. Remarks have been made on the tide which flows into the Katanga, that at the full and new moon it rifes two feet; at other times is much less ||. We may conclude, that if it flows no higher in this contracted place, and that of the gulph of Kara, its increase must be very fmall on the open shores of the Icy Sea. The coasts are in general fhallow, which has proved a fafety to the few small vessels which have navigated this fea; for the shoalness of the water preserves them from the mountanous ice, which grounds before it can reach them.

BEYOND the Olenek, the vast Lena, which rises near lake Baikal, after a gentle and free course over a fandy or gravelly bottom, discharges itself by five great mouths, the eastern and western most remote from each other. The middle, or most northerly, is in lat. 73. 20. Many of the isles formed by the mouth of this river are wholly covered by the Hippuris Vulgaris, common Horsetail. This brings multitudes of Wild-geese, who are particularly fond of the plant: and amazing numbers are taken annually in snares §. To form an idea of the size of this river, I must remark, that at Iakutsk, in lat. 61. twelve degrees from its discharge, the

+ Same, and Purchas, iii. 539. In Bergeron's \* Voyage en Siberie, ii. 57. § Fl. Sib. iii. 8. || Voy. en Siberie, ii. 30. Collection, 160, 161. breadth Z 2

RIVER LENAS

## JOURATZKAINE COAST.

breadth is near three leagues \*. Beyond this river the land contracts itself, and is bounded to the south by the gulph of Ochotz. The rivers Jana, Indigirska, and Kolyma or Kowyma, have a comparatively short course. The last is the most easterly of the great rivers which fall into the Icy Sea. Beyond it is a woodless tract, which cuts off the Beaver, the Squirrels, and many other animals to whom trees are essential in their economy. No forests can exist farther north than lat. 68; and at 70, brush-wood will scarcely grow. All within lat. 68, form the Arctic Flats, the summer haunts of water-sowl; a bare heath or moor, mixed with rocky mountains: and beyond the river Anadyr, which in lat. 65, falls into the Kamt-schatkan Sea, the remainder of the tract between it and the Icy Sea has not a

ARCTIO FLATS WOODLESS.

JOURATZKAINE COAST. fingle tree +.

I shall now take a review of the vast extent of shore which borders on the Icy Sea. The Jouratzkaine coast, which lies between the Ob and the Jenesei, is high but not mountanous, and almost entirely composed of gravel or fand; but in many places there are low tracts. Not only on these, but on more elevated situations, are found great fragments of wood, and often entire trees, all of the fame species; Fir, Larch, and Pine, green and fresh; in other places, elevated beyond the reach of the sea, are also great quantities of floated wood, antient, dried, and rotting t. This is not the only proof of the loss of water in the Icy as well as other seas; for in these places is seen a species of clay, called by the Russians, H, which is exactly like the kinds usually deposited by the water: and of this there is, in these parts, a bed about eight inches thick, which univerfally forms the upper stratum ||. Still farther to the east, it grows mountanous, covered with stones, and full of coal. On the fummit of the chain, to the east of Simovie Retchinoie, is an amazing bed of small Mussels, of a species not observed in the subjacent sea. I think them brought there by fea-fowl, to eat at leifure; for it is not wonderful that numbers of objects of natural history should escape the eye in such

+ Doctor Pallas.

‡ Voy. en

a sea

<sup>\*</sup> Possibly Versts. See Voy. en Siberie, i. 407. Siberie, ii. 27, 28. H Same, ii. 362.

a fea as this. Many parts again are low; but in most places the fea near the shore is rugged with pointed rocks. The coast about the bay of cape Tschutschi, the most eastern extremity of Asia, is in some places rocky, in others sloping and verdant; but within land rising into a double ridge of

high mountains.

About the end of August, there is not a day in which this sea might not be frozen; but in general it never escapes later than the first of October. The thaw commences about the twelfth of June, at the same time with that of the mouth of the Jenesei\*. From the great headlands, there is at all times a fixed, rugged, and mountanous ice, which projects far into the sea. No sea is of so uncertain and dangerous navigation: it is, in one part or other, always abundant in floating ice. During fummer, the wind never blows hard twenty-four hours from the north, but every part of the shore is filled for a vast distance with ice; even the streights of Bering are obstructed with it +. On the reverse, a strong fouth wind drives it towards the pole, and leaves the coast free from all except the fixed ice. During winter, the sea is covered, to the distance of at least six degrees from land. Markoff, a hardy Coffac, on March 15th, O. S. in the year 1715, attempted, with nine other persons, a journey from the mouth of the Jana, in 71 north lat. to the north, over the ice, on sledges drawn by dogs. He went on fuccefsfully fome days, till he had reached lat. 77. or 78: he was then impeded by most mountanous ice. He climbed to the fummit of one of the Icebergs; and feeing nothing but ice as far as his eye could reach, returned on April 3d, with the utmost difficulty: feveral of his dogs died, and ferved as food for the rest ‡.

I shall just mention some of the attempts made to pass through the Icy Sea to that of Kamtschatka. The first was in 1636, from the settlement of Yakutzk. The rivers from the Jana to the Kolyma were in consequence discovered. In 1646, a company of Russian adventurers, called Promyschleni, or Sable-hunters, made a voyage from the Kolyma to the

\* Voy. en Siberie, ii. 29. away on East Spitzbergen, 55. † PALLAS: Also Narrative of sour Russian sailors cast I Forster's Obs. 81.

country

FREEZING OF THE ICY SEA. VOYAGE OF DESCHNEY.

country of the Tschutschi, and traded with those people for the teeth of the Walrus. A fecond, but unfuccessful voyage was made in the next year; but in 1648 one Deschnef, on the 20th of June, began his memorable voyage, was fortunate in a feafon free from ice, doubled the Tichutschi-noss, arrived near the river Olutora, south of the river Anadyr, where he fuffered shipwreck, but escaped to enjoy the honor of his discovery. Doubts were for a long time entertained, whether Deschnef had passed this celebrated promontory, but, fortunately for his memory, the observations of Cook entirely confirm those made in the last century by the Russian. The appearance of the coast exactly tallies in the accounts of each of these voyagers. Each of them have noted the towers made of the bones of Whales\*, which, in this age at lest, is peculiar to these people.

Many other attempts were made, but the most which the adventurers have done was to get from the mouth of one great river to another in the course of a summer. I find very few names, except of rivers, in a tract so vast as it is, on account of its being so little frequented. To the east of the promontory Taimura, that of St. Transfigurationis bounds the east side of the bay of Chatanga, in lat. 74. 40, long. from Ferro 125. Swaitoi-noss, or the Holy Cape, in lat 73. 15, is a far-projecting headland, and, with the isles of the Lena, and another intervening headland, forms two vast bays. Out of the most eastern, into which the river Yana OF SCHALOUROF. discharges itself, one Schalourof, a broken Russian merchant, toke his departure for an eaftern discovery. He began his voyage, in July 1760, from the Lena, but was so obstructed with ice that he was forced into the Yana, where he was detained the whole winter, by the same cause, till July 29th, 1761. He doubled the Swaitoi-noss September the 6th; according to some, faw to the north a mountanous land, possibly an island. He was eight days in getting through the passage between the continent and the isle of St. Diomede, which lies a little to the south-east of the Noss. He passed with a favorable wind the mouths of the Indigirka and Alazeia, and getting entangled among the ice between the Medviedkie Ostrova, or

\* Coxe's Comparative View, p. 12.

Bear

Bear Islands, was obliged to lay up his vessel in one of the mouths of the Kolyma during winter, where he subsisted on Rein-deer, which frequented those parts in great herds during the severe season; and on various species of Salmon and Trout, which were pushing their way up the river before it was frozen. After this he made two other attempts. In the year 1763 he paffed the Peszcanoi-noss, and got into a deep bay, called Tschaoun Skaja Goilba, with the isle of Sabedei at its mouth; the great Schalatskoi-noss to the east; and at its bottom the little river Tschaoun, which discharges itself here out of the land of the Tschutschi, some of whom he saw on the shore, but they fled on his appearance. He found no means of subsisting in this bay, therefore was obliged to return to the Lena, and was greatly affifted in his passage by the strength of the current, which uniformly set from the east. In 1764 he made his last attempt, and was, as is conjectured, flain by the Tschutschi; but whether he doubled the famous cape of that name, is left uncertain. A MS. map, which Doctor Pallas favored me with, places the mountanous isle before mentioned in lat. 75, opposite to the cape Schalatskoi \*. Thus closes all the accounts I can collect of the voyages along this distant coast. Part is taken from Mr. Coxe's Russian Discoveries +, and part from a manuscript for which I am indebted to the learned Professor before mentioned.

It will be proper to mention here, that the BEAR ISLANDS were further BEAR ISLANDS. explored in 1763, by the two land furveyors, Andrejef Leontief, and Lysfof. They began their journey on March 4th, from Nischne Kowimskoi, in fledges drawn by dogs: on April 22d they reached the shore of the Icy Sea, and opposite to the mouth of the river Krestowa, went on the ice in a straight direction to the first island; on landing they found it to consist of small yellowish gravel, overspread with rocks of granite of immense

\* This was supposed to have been part of the continent of America; but in 1768, M. Tchitscherin, governor of Sibiria, put the matter out of doubt; for he sent there three young officers in the winter, on the ice. They found fome small defert isles, without the lest appearance of land on the north; but on one they met with a fort of defence, formed of floating wood, on the fide of a precipice, but by whom formed, or against what enemy, is hard to f P. 323 to 329. guess. PALLAS MS.

bigness,

bigness, but productive of nothing but moss and short grass like the Tundra, or the great northern tract on the continent. They sound there the remainder of a jurt or tent, made of the sloating timber which abounds in this part of the sea. It did not seem of Russian construction, therefore must have been built by some of the natives of the continent, who came here for the sake of the chace of sea animals. In one part of the isle is a losty hill of a most rugged form; having to the east a dreadful precipice. This island seemed fifty versts long, and forty broad.

They afterwards visited four other isles; near to the third was a rock separated about eleven fathoms from the shore, connected at low water to the island. It consisted of brittle granite, and was about ten yards high. About six yards from the bottom was a declivity, on which were placed ten fir trees with their roots upwards; over the roots were placed planks covered with gravel; along the sides were boards six spans high; and over the whole had been a roof, now fallen down, formed of small pieces of floating timber, sastened with leathern straps and covered with gravel: it had one entrance from land, another from sea; and was about five fathoms and a half long, and four broad, and of most coarse workmanship. On the same issee were traces of a hut, and two cellars.—No animals were seen on them but polar Bears and artic Foxes.

By the accounts of these adventurers, the farthest isle must extend far to the east, for they affert that it lay opposite to the bay of Tschaoûn. On this island the provisions for their dogs began to fail. They were obliged to set out on their return on the 12th of April. Their whole journey, and their return to the continent, was comprehended in five or six days \*.

EXCESSIVE COLD.

The wind which passes over the ice of this polar sea, has rendered Sibiria the coldest of inhabited countries: its effects may perhaps extend much farther. At Chamnanning, in Thibet, in lat. 30. 44. (according to Major Rennel's classical map) Mr. Bogle found, during winter, the thermometer in his room at 29° below the freezing point. In the middle of April

\* Neue nordische Beytrage, I. 231.

the standing waters were all frozen, and heavy snows perpetually fell \*. I have heard of ice even at Patna, in lat. 25. 35; and of the Seapoys who had flept on the ground being found in the morning torpid. Near the fort. of Argun, not higher than lat. 52, the ground feldom thaws deeper than a vard and a half +. At lakutsk, in lat. 62, the foil is eternally frozen, even in fummer, to the depth of three feet below the furface. An inhabitant, who by the labor of two fummers funk a well to the depth of ninety-one feet, lost his time, and found his farthest searches frozen t. Birds fall down, overcome with the cold; and even the wild beafts fometimes perish. The very air is frozen, and exhibits a most melancholy gloom §.

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The Aurora Borealis is as common here as in Europe, and usually ex- Aurora Boreas hibits similar variations: one species regularly appears between the north-east and east, like a luminous rainbow, with numbers of columns of light radiating from it: beneath the arch is a darkness, through which the stars appear with some brilliancy. This species is thought by the natives to be a forerunner of storms. There is another kind, which begins with certain infulated rays from the north, and others from the north-east. They augment little by little, till they fill the whole sky, and form a splendor of colors rich as gold, rubies, and emeralds: but the attendant phenomena strike the beholders with horror, for they crackle, sparkle, his, make a whiftling found, and a noise even equal to artificial fire-works. The idea of an electrical cause is so strongly impressed by this description, that there can remain no doubt of the origin of these appearances. The inhabitants fay, on this occasion, it is a troop of men furiously mad which are passing by. Every animal is struck with terror; even the dogs of the hunters are seized with such dread, that they will fall on the ground and become immoveable till the cause is over ||.

I am flightly acquainted with the fish of the Icy sea, except the anadromeus kinds, or those which ascend from it into the Sibirian rivers. The

FISH

I Forfter's Obs. 85. \* Ph. Trans. lxvii. 471. + Pref. Flora Sib. 78. | Voy. en Siberie, ii. 31, 52. § Pref. Flora Sib. 73. quoted from Gmelin.

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Ob, and other Sibirian rivers, are visited by the Beluga Whale, the common Sturgeon, and the Sterlet or Acipenser Ruthenus, Lin. Syst. 403; but I am informed by Doctor Pallas, that they have neither Carps, Bream, Barbels, nor others of that genus, nor yet Eels, Silurus Glanis, Lin. Syst. 501; Perca Lucioperca, 481; or common Trout: all which are found in the Amur, and other rivers which run into the eastern ocean: in the latter our common Cray-fish is found. In return, the Sibirian rivers abound in vast variety of the Salmon kind, and many unknown to us in Europe, which delight in the chilly waters of these regions. The common Salmon, Br. Zool. iii. No 143, is one of the scarcer kinds: the Salmo Nelma, Pallas Itin. ii. 716, or Salmon Leucichthys of Guldenstaedt, Nov. Com. Petrop. xiv. 531, is a large species, growing to the length of three feet: the head greatly protracted: the lower jaw much the longest: the body of a silvery white: scales oblong: tail bisid. P. D. Rad. 14. The Salmo Taimen, or Hucho, Pallas, ii. 716, grows to the weight of ten or fifteen pounds, and the length of a yard and a half: the color of the back is dusky; towards the fides filvery: the belly white: fpotted with dusky on the back: anal fin of a deep red: tail bifurcated: flesh white. Salmo Lavaretus, iii. 705, or Gwiniad, Br. Zool. iii. No 152: Salmo Albula, Lin. Syst. 512: Salmo Schokur, Pallas Itin. iii. 705; a species about two feet long, not unlike the Gwiniad: the Salmo Pidschian, Pallas Itin. iii. 705; about two spans long, broader than the Gwiniad, and with a gibbous back: Salmo Wimba, Lin. Syst. 512: and Salmo Nasus, Pallas Itin. iii. 705\*, are extremely common in the Ob. Others shun that still river, and seek the Jenesei, and other rapid streams with stony bottoms. Such are the Salmo Lenok, Pallas Itin. ii. 716 †: Salmo Oxyrbynchus, Lin. Syst. 512: and Salmo Autumnalis, or Omul, Pallas Itin. iii. 705; which annually force their way from the fea, Surprizing MI- from lat. 73. to lat. 51. 40, into lake Baikal, a distance of more than twenty-one degrees, or near thirteen hundred miles. The Omul even

GRATIONS OF FISH.

crosses

<sup>\*</sup> The Schokur and Nasus are two species of Coregoni or Salmons, with very small teeth. + Voy. en Siberie, i. 237. It also ascends through the Jenesei and the Tuba to the Madhar, a lake an amazing distance in the mountains.

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crosses the lake, and ascends in August the river Selinga, where it is taken by the inhabitants in great quantities, and is preferved for the provision of the whole year. After dropping its spawn in the stony beds of the river, it again returns to the sea. The Salmo Arcticus, Pallas Itin. iii. 206; and S. Thymallus, or Grayling, Br. Zool. iii. No 150; may he added to the fifth of the Sibirian rivers. The Salmo Cylindraceus, or Walok of the Rushans, is a fish very slender, and almost cylindrical, with a very small mouth, large filvery scales, and the under fins reddish. This is found only in the Lena, the Kowyma, and Indigirska, M. Gmelin and the Abbé d'Auteroche affure us, that Pikes, Perch, Ruffs, Carp, Bream, Tench, Crucians, Roach, Bleaks, and Gudgeons, are also met with in the Ob, and different rivers of this country\*. I cannot reconcile this to the former account given me by so able a naturalist, to whom I owe this history of the Artic fish. The Salmo Kundsha, Pallas Itin. iii. 706, abounds in the gulphs of the Icy fea, but does not afcend the rivers; and the Pleurone Etes Glacialis, Pallas Itin. iii. 706, is frequent on the fandy shores.

The Mollusca and Vermes, which extend to the gulph of Kara, the be- VERMES OF THE ginning of the Icy sea, are, the Aphrodita Squammata, Nereis Cylindraria, Actinia Equina et Senilis, Ascidia Globularis, Pallas Itin. III. App. Nº 57; Buccinum Glaciale et Undatum, Murex Antiquus et Canaliculatus, and the Tellina Atra.

The Monoculus Arcticus, PALLAS ITIN. III. App. Nº 58, fwarms in the lakes near the Icy fea, and is the great support of the multitudes of waterfowl which make them their fummer retreat. Among the Zoophytes of the Frozen ocean are the Eschara Foliacea, Sertularia Dichotoma et Cupressina, Alcyonium Digitatum et Gelatinosum, and the Spongia Oculata and Infundibulum. And of the Fucus tribe, the Saccharinus Edulis, Quercus, Ceranoides, Aculeatus, Glacialis, and Truncatus, PALLAS ITIN. III. Nris 135 and 136, and the Ulva Intestinalis.

To review the inhabitants of the Arttic coasts, I shall return as far as

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ICY SEA.

<sup>\*</sup> Voy. en Siberie, par Gmelin, i. 84, 89, 241. ii. 167, 170, 219 .- Voy. en Siberie, par l'Abbé d' Auteroche, i. 200. Engl. Ed. 231. The last is most faultily translated.

Finmark. I refer the reader to p. cxxx. for what I have faid of the Laplanders. The Samoieds line the coasts from the east side of the White sea, as far (according to the Russian maps) as the river Ob, and even the Anabara, which falls into the Icy sea in lat. 73.30; and possess the wildest of countries inland, as low as lat. 65. After them succeeds, to the east, a race of middle size; and, extraordinary to say, instead of degeneracy, a fine race of men is found in the Tschutschi, in a climate equally severe, and in a country equally unproductive of the supports of life, as any part of these inhospitable regions. The manners of all are brutal, savage, and nearly animal; their loves the same; their living squalid and filthy beyond conception: yet on the site of some of these nations Mela hath placed the elegant Hyperborei: and our poet, Prior, giving free loose to his imagination, paints the manners of these Artic people in the following beautiful siction, after describing the condition of the natives of the storrid zone.

And may not those, whose distant lot is cast North beyond Tartary's extended Waste; Where, thro' the plains of one continual day, Six shining months pursue their even way, And fix fucceeding urge their dusky flight, Obscur'd with vapors, and o'erwhelm'd in night; May not, I ask, the natives of these climes (As annals may inform succeeding times) To our quotidian change of heaven prefer Their own vicissitude, and equal share Of day and night, disparted thro' the year? May they not fcorn our fun's repeated race, To narrow bounds prescrib'd, and little space, Halt'ning from morn, and headlong driven from noon, Half of our daily toil yet fcarcely done? May they not justly to our climes upbraid Shortness of night, and penury of shade? That, ere our weary'd limbs are justly blest With wholesome sleep, and necessary rest, Another fun demands return of care, The remnant toil of yesterday to bear?

Whilst,

### ARCTIC COASTS.

CLXXVIE

Whilst, when the folar beams falute their fight, Bold and fecure in half a year of light, Uninterrupted voyages they take To the remotest wood, and farthest lake; Manage the fishing, and pursue the course With more extended nerves, and more continued force? And when declining day forfakes their fky; When gathering clouds fpeak gloomy Winter nigh, With plenty for the coming feafon bleft, Six folid months (an age) they live releas'd From all the labor, process, clamor, woe, Which our fad fcenes of daily action know: They light the shining lamp, prepare the feast, And with full mirth receive the welcome guest: Or tell their tender loves (the only care Which now they fuffer) to the lift'ning Fair; And rais'd in pleafure, or repos'd in eafe, (Grateful alternates of substantial peace) They bless the long nocturnal influence shed On the crown'd goblet, and the genial bed.

With greater reality speaks that just observer of nature, the naturalist's poet, of the inhabitants of this very country, as a true contrast to the foregoing lines:

Hard by these shores, where scarce his freezing stream
Rolls the wild Oby, live the last of men;
And half enliven'd by the distant sun,
That rears and ripens man as well as plants,
Here human nature wears its rudest form.
Deep from the piercing season, sunk in caves,
Here, by dull sires, and with unjoyous cheer,
They waste the tedious gloom. Immers'd in surs,
Doze the gross race. Nor sprightly jest, nor song,
Nor tenderness they know; nor aught of life,
Beyond the kindred Bears that stalk without.
Till morn appears, her roses dropping all,
Sheds a long twilight bright'ning o'er the fields,
And calls the quiver'd savage to the chace.

THOMSON.

This

CONQUEST OF

SIBIRIA.

### ARCTIC COASTS.

This amazing extent of the Afiatic Russian dominions remained undiscovered to a very late period. The Czars, immerfed in fenfuality, or engaged in wars, had neither tafte or leifure to explore new countries. A plundering excursion was made into it in the reign of Basilovitz I; a second was made under his fuccessor: but a stranger, the celebrated Cossac, Yermac, driven from his country on the shores of the Caspian sea, pushed his way with a refolute band as far as Orel, near the head of the Kama, on the western side of the Urallian chain. There he met with one Strogonoff, a Russian merchant, recently settled in those parts for the sake of the traffic of furs. He continued in that neighborhood the whole winter, and was supplied by the Russians with all necessaries. In the spring he turned his arms against Kutchum Chan, one of the most powerful of the petty princes of the country which now forms part of the government of Tobolski. In 1581, he fought a decifive battle with the Chan, overthrew him, and feated himself on the throne. Finding his situation precarious, he ceded his conquests to Bafilovitz, who seized on the opportunity of adding this country to his dominions. He fent Yermac a supply of men. But at length his good fortune forfook him. He was surprized by the Chan; and, after performing all that a hero could do, perished in attempting to escape.

The Russians, on the death of their ally, retired out of Sibiria; but they soon returned, recovered the conquests made by Yermac, and, before the middle of the following century, added to their ancient possessions a territory fourteen hundred and seventy leagues in length, and near seven hundred in breadth (without including the Russian colonies on the island of Oonalashka, on the coast of America\*) yet it is so thinly peopled, and with such barbarians, as to add no strength to the empire by any supplies to the army or navy. They are almost torpid with inaction; lazy to the highest degree, from their necessary consinement to their stoves during the long winter of the country. In that season, the ground is clad with deep snow, and the frost most tremendously severe. The spring, if so it

\* D' Auteroche, Voy. en Siberie, i. 83.

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may be called, is distinguished by the muddied torrents of melting snows, which rush from the mountains, and give a sea-like appearance to the plains. Mists, and rain, and snow, are the variations of that season, and they continue even to the fourth of June. The short summer is hot and savorable to vegetation. Corn may be seen a foot high by the 22d of June; and the grass is most luxuriant. Culinary plants will scarcely grow about Tobolski. Fruits of every kind, except a currant, are unknown. A single crab-like apple, raised in a hot-house, was once produced there, sliced in a large dish, at a great entertainment, and served up with as much oftentation as we would in England a pine-apple.

The animals of Sibiria, the furs of which were the original object of its conquest, are now so reduced, that the Russians are obliged to have recourse to England for a supply from North America, which they add to their own stock of surs exported into China. Metals seem the staple trade of the country. Those of iron and copper are abundant and excellent. Gold and silver are found in several places, and in such abundance, as to form a most important article in the revenues of Russia. The copper mines of Kolyvan, from which those precious metals are extracted, employ above forty thousand people, mostly colonists. The silver mines of Nertschinsk, beyond lake Baikal, above fourteen thousand. The whole revenue arising from the mines of different metals, is not less than s. 679,182. 135.\*

Next to the discovery of the new world, no place has added more to the entertainment of naturalists than Sibiria. As has been before observed, nature there assumes a new appearance in the animal world: it does the same in the vegetable; at lest, very sew trees are found common to Europe and Asia. Let me just mention the nobler kinds: the Oak, frequent as it is in Russia and in Casan, is not to be seen in this vast region nearer than the banks of the Argun and Amur, in the Chinese dominions. The White Poplar, Populus alba; and the Aspen, Populus tremula, are extremely common. The Black Poplar, Populus nigra; the

PLANTS.

\* Coxe's Travels.

Common



Common Sallow, Salix caprea; Sweet Willow, Salix pentandra; White Willow, Salix alba, are very frequent. The Hazel, Corylus Avellana, is circumstanced like the Oak. The Common Birch, Betula alba, is most abundant; and, as in all northern nations, of universal use. The Dwarf Birch, Betula nana, is confined to the neighborhood of lake Baikal. The Alder, Betula Alnus, is very frequent. The Pinaster, Pinus Pinea; the Pine with edible feeds, or Pinus Cembra; and Larch, Pinus Larin; all trees of the first use, medicinal or œconomical, cover many parts of the country. The Norway Fir, Pinus Abies, and the Silver Fir, Pinus Picea, form, in most parts of the country, great forests: the first grows in this country not farther north than lat. 60; the last not higher than lat. 58: yet the former flourishes in Europe, and composes in Lapmark, far beyond the Artic circle, woods of great extent: a proof of the superior rigor of cold in the Afiatic north. These form the sum of European trees growing in Sibiria. Of other plants, common to both continents, M. Gmelin gives the reader, in p. xciv. of his Preface, a slender lift of such which fell under his observation.

Europe is obliged to Sibiria for that excellent species of Oat, the Avena Sibirica, Fl. Sib. i. 113. tab. 22. Lin. Sp. Pl. i. 117; and our gardens are in a most peculiar manner enlivened with the gay and brilliant flowers introduced from that distant and severe climate. I shall only select a few out of the multitude \*. Veronica Sibirica, Iris Sibirica, Fl. Sib. i. 28. Eryngium planum, i. 185. Lilium bulbiferum, i. 41. L. pomponium, i. 42. L. Martagon, i. 44. Delphinium grandissorum, Sp. Pl. i. 749. Erythronium dens canis, i. 39. tab. 7. Hemerocallis slava, i. 37. Saxifraga crassifolia, Sp. Pl. i. 573. Lychnis chalcedonica, Sp. Pl. i. 625. Robinia Helodendron, Fl. Ross. 72. tab. xlvi. Pyrus baccata, Fl. Ross. P. 23. tab. x. Lythrum virgatum, Sp. Pl. 642. Amygdalus nana, Sp. Pl. 677. Pæonia tenuisolia, Sp. Pl. i. 748. Clematis integrisolia, Sp. Pl. i. 767. Adonis vernalis, Sp. Pl. i. 771. Astragalus alopecuroides, Sp. Pl. i. 767. Adonis vernalis, Sp. Pl. i. 771. Astragalus alopecuroides, Sp.

<sup>\*</sup> This list was communicated to me by an able botanist; but I think some of the plants are also found in Europe.

Pl. ii. 1064. Hypericum Ascyron, Sp. Pl. ii. 1102. Echinops Ritro, Fl. Sib. ii. 100. Veratrum nigrum, Fl. Sib. i. 76.

After the conquest of Sibiria, the Tschutschi were the first people discovered by the Russians, who were indebted to the adventure of Deschnew for the knowlege of them. They are a free and brave race, and in fize and figure fuperior to every neighboring nation; tall, flout, and finely made, and with long and agreeable countenances; a race infulated strangely by a leffer variety of men. They wear no beards. Their hair is black, and cut short, and covered either with a close cap, or hood large enough to cover the shoulders. Some hang beads in their ears, but none have the barbarism to bore either noses or lips. They wear a short and close frock, breeches, and fhort boots: fome have trowfers. The materials of their cloathing is leather admirably dreffed, either with or without the hair \*. It is faid that at times they wear jackets made of the intestines of Whales †. like the Eskimaux; probably when they go to sea, for they excel their neighbors in fishing, and use open boats covered with skins t, and like the women's boats of the Greenlanders. They have also the lesser or kajak. They make use of sledges, and have large fox-like dogs of different colors, with long foft woolly hair, which are probably defigned for the draught. Some fay that they use Rein-deer, of which they have vast abundance, but neither milk them nor kill them for food, preferring the flesh of sea animals, except one dies by chance, or is killed by the Wolves. They are a spirited and warlike people; are armed with bows and arrows; the last pointed with stone or bone. They have spontoons headed with steel, procured by traffic from the Russians; these they usually sling over their right shouls der; and a leathern quiver of most elegant workmanship hangs over the left §. The Russians have often gained dear-bought victories over this brave people, but never were able to effect their conquest. They retained an high fense of liberty, and constantly refused to pay tribute; and the ambitious European miscalled them rebels. They will not on any con-

Тяснитасии.

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<sup>\*</sup> Cook's Voyage, ii. 450, tab. 51. + Hift. Kamtschatka, Fr. 1 Voyage, ii. 452.

<sup>§</sup> See tab. 51 of the Voyage.

fideration part with their weapons: possibly a Tschutschi may think a difarmed man dishonored. Captain Cook, in his three hours visit to them, found their attachment to their arms, notwithstanding they willingly parted with any thing elfe, and even without the prospect of exchange. They treated him with great civility, but prudent caution: faluted him by bowing and pulling off their caps, possibly a piece of politeness they learned from the Rushans. They treated him with a fong and dance, and parted friends; but not without a most remarkable and consequential event: - A year after the interview between Captain Cook and the Tschutschi, a party of these people came to the frontier post of the Russians, and voluntarily offered friendship and tribute. These generous people, whom fear could not influence, were overcome by the civility and good conduct of our illustrious commander: they mistook him and his people for Russians, and, imagining that a change of behaviour had taken place, tendered to their invaders a lafting league \*. Possibly the munificent empress may blush at the obligation conferred by means of British fubjects, in procuring to her empire a generous ally, at the instant her armed neutrality contributed to deprive us of millions of lawful fubjects.

THEIR DWEL-

Their winter dwellings were vaulted, and sunk a little under ground. The framing was composed of wood and the ribs of Whales; more slender materials were laid over the roof, over them strong grass, and above all, a strong covering of earth: above them was a fort of centry-box, made of the bones of large sish. The frames of the summer huts were slight poles and bones. The stages for drying of sish were composed of the last material. This is not by any means a new species of architecture. The commanders of the fleet of Alexander the Great observed, that the Gedross, a people living on the gulph of Sind in India, made the frames of their doors, and their rasters, of the bones of Whales †. How often are the histories of the antients, deemed fabulous, verified by our modern discoveries!

\* Voy. iii. 217.

+ Plin. Hist. Nat. lib. ix. c. 3.

From

From the shortness of the interview little knowlege could be gained of their customs. I shall only observe, that they bury their dead under heaps of stones, or carnedds: several were seen here with the rib of a whale on the top instead of a pillar \*; a proof of the universality of these memorials of the dead.

I shall endeavour to make some addition to the accounts of the Tschutschi given by Captain Cook, from two relations preserved in the Neue Nordische Beytrage; as any thing relative to so remote a people cannot but be Rein-deer, and others which have zone; the laft live in indee by a state and others are a state of the state

The first is from the journal of the Coffack Nicolai Daurkin; who, by DAURKIN'S Acprivate direction from his commander, feigned a defertion from the Ruffian post on the Anadyr, to the nearest post of the Tschutschi, was well received by them, and continued with them from July 20th, 1763, to the winter of the same year. This journal relates chiefly to the isles intermediate between Asia and America, in BEHRING's streight. In October, when the sea between the Asiatic and American land was frozen, he procured a fledge and a couple of Rein-deer, and, attended by one of the Tschutschi, who had adopted him as a kinfman, paffed over to the first island, and arrived there in five or fix hours. The inhabitants received them very kindly; but instantly asked for tobacco leaves; which being presented to them, they in return presented the travellers with some of their cloathing made of furs. The natives wore dreffes made of the skins of Rein-deer; and lived on the flesh of Whales, Walruses, and Seals. For want of wood, they dreffed their food by means of lamps, made of a stone hollowed on the top, into which they poured train-oil, and into that they put a wick made of a foft moss, a fort of sphagnum or bogmoss, tied with ftrings, made of the bowels of animals: with these lamps they not only dreffed their meat, but also warmed themselves. The natives of this isle are called by the Tschutschi, Achülaet.

On the fecond isle live the fame kind of people, who call it Pejerkely. The chief of them bore each fide of the lips of their children, and intro-

COUNT OF IT,

AND OF AME-RICA.

\* Ellis's Narrative, I. 332. Movement

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duce into them pieces of the teeth of the Walrus: in other respects, they are cloathed like the natives of the first isle. These were the two islands seen in the streights by Captain Cook, but were neither named or visited by him. These people had intercourse with the Tschutschi; for in one of the engagements which Colonel Paulutzki had with them in 1731, he found one of the islanders among the slain\*, with his lips bored as before described.

DAURKIN mentions two ranks of Tfchutfchi; one who have herds of Rein-deer, and others which have none; the last live in holes below ground, and subsist on the slesh of sea animals entirely: but the others, in certain seasons, apply themselves to the chace of Sea Bears, Walruses, Whales, and Belugas, or the White Dolphin.

The fecond journal was made by Iwan Robelef, a Kafak Stonik, or a Coffack, who commanded a hundred men. In 1779 he was dispatched, like the former, as a spy into the country of Tschutschi; on the 20th of May he reached the Serdze kamen, in the bay of Notschan. He observed there, that the natives possessed of Rein-deer treated those who had none as the Russians do their vassals, and obliged them to fish for them, and to surnish them with train-oil, and the sless of Sea-horses; for which they supplied them with that of the Rein-deer.

On July 17th, Robelef reached the village Jagacgein, and from thence crossed a bay, eight versts broad, to the village Nernegin: here the Ischutschi mentioned to him the arrival of Captain Cook, in 1778, and the intercourse, as related by Captain Cook, in vol. II. p. 447 of his voyage. Robelef fixes the latitude of the place where he received his account in 65.48, and in longitude 206.30. The same people remembered also the visit paid to them by Behring, several years before, when forty of the natives visited his ships in sour leathern boats. Two important circumstances in the annals of the country.

ROBELEF also visited the two intermediate isles: one he calls Imoglin, which was five versts long, and two broad. It had two villages, contain-

Decouvertes faites par les Russes, I. 172.

ing two hundred and three males, and a hundred and ninety-five female inhabitants. It lay forty versts from the Asiatic shore. The second isse he calls Ijelgin: its length was three versts; its breadth one and an half: its distance from Imoglin, three versts; from America about thirty. Its number of inhabitants eighty-five males, and seventy-nine females. The chief of this isse was a native of America.

He affured Robelef of a fact too curious to be omitted—that there was a colony of Russians, which have been long settled on that continent: that they are distinguished from the Americans by their long beards, and by their language: that they can write, say their prayers out of books, and worship pictures. Robelef wished earnestly that the chieftain would bring him over to his countrymen; but was told he did not dare to do it, least Robelef should come to any mischance, for which he should be answerable to the Tschutschi.

Robellef was also told by a Tschutschi, who had formerly crossed to America for the sake of trade, and made acquaintance with a person, who afterwards visited him in the isle of Imoglin, and brought to him a board, on which was written on one side red characters, on the other black; and said he had it from people with beards, who desired him to deliver it to the Russians who were in garrison at Anadirsk; and that the purport of it was to obtain iron from them. The Russians of that garrison had a tradition, that out of seven kotches or vessels, which once sailed from the mouth of the Lena, along the coasts of the Icy Sea, to double the Tschutschi point, three were never more heard of. These they believe to be the sounders of this colony: but whether it has any better foundation than the story of the Welsh settlement in North America, by the sons of Owen Gwynedd, in 1170, appears to me a matter of great doubt.

ROBELEF informs us, that there is no visible ebb or flow in the Streights of Behring, and only a moderate current, running in summer from the Eastern ocean northward into the Icy sea, and about August turns to the south, and brings with it the floating ice. He adds, that the tide on the Tschutschi-noss flows six seet.

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### MIGRATION OF THE REIN-DEER.

The Tichutichi gave Robelef much information respecting the topography of the opposite coast of America: from these accounts a map\* is formed (with the assistance of that by Captain Cook), in which is placed a vast river, emptying itself into the Icy sea a little to the south of Cape Mulgrave; then making a bend southerly, and taking a very long course in that direction. Its banks are made as full of towns and villages (all of them named), as the banks of the Thames; nor are the coasts, from its mouth to Norton sound, made less populous; and those from point Shallow Water to Shoalness vie in that respect with all the preceding. As Captain Cook met with no such marks of population, I must suspend my belief till these coasts have been farther explored; which the spirit of curiosity, which now reigns, makes me not despair of seeing effected.

The Tschutschi country is overgrown with yellow and white moss, which nourishes vast flocks of wild Rein-deer. These animals are accustomed, in May or June, as foon as the Anadyr is clear from ice, to swim over the river by thousands, to the cold woodless countries towards the Icy sea, to save themselves from insects; and they retire again in August, and the beginning of September, to the woods to change their horns. The neighboring inhabitants take the advantage of their migration, to kill great numbers of them for their provitions. The people are at this time particularly careful to avoid making much noise, or causing smoke in those parts where the Rein-deer pass; and watch the first harbingers of their arrival. The hunters affemble in small boats, and when the herd of Rein-deer is croffing the river, they row amongst them, and kill with lances as many as they can, which amount often to feveral hundreds. The herds crowd, during three whole days, fo close together, that they cannot escape; but after that space the whole march is over, except by chance a fingle deer is now and then feen. The greatest number of Rein-deer killed in this encounter are females (Washenki), which cannot so easily make their escape, with their young

<sup>\*</sup> See vol. IV. of Neue Nordische Beytrage, and the whole narration, at p. 105.

ones, as the bucks, who are always foremost, and retire therefore sooner. The Rein-deer in these eastern parts are in general much smaller than elsewhere in Sibiria, the largest buck weighing no more than four puds, and a female about two and a half. The flesh, which is dried for preserving, is tied together in bunches, which contain two deer, and each bunch weighs a pud and half or two puds \*.

The country of the Tschutschi forms the most north-easterly part of Asia. It is a peninfula, bounded by the bay of Tchaoûn, by the Icy Sea, the streights of BEHRING, and the gulph and river of Anadir, which open into the sea of Kamtschatka. It is a mountanous tract, totally destitute of wood, and consequently of animals which require the shelter of forests. The promontory Schalotskoi, before mentioned, is the most westerly part. Whether it extends fo far north as lat. 74, as the Russians place it, is very doubtful: there is the opinion of our great navigator against it. From his own reasonings he supposed that the tract from the Indigirska, eastward, is CORRECTIONS IN laid down in the maps two degrees to the northward of its true position +. From a map he had in his possession, and from information he received from the Russians, he places the mouth of the Kowyma in lat. 68, instead of lat. 71. 20, as the Petersburg map makes it. It is therefore probable, that no part of Asia in this neighborhood extends further than lat. 70, in which we must place the Schalotskoi Noss; and, after the example of Mr. Campbell, who formed his map of this country chiefly from the papers of Captain Behring I, give the land which lies to the east of that promontory a very fouthern trend. As Captain Cook had caufe to imagine that the former charts erred in longitude as well as latitude, it is probable that he reached within fixty miles of the Schalotskoi Noss &. There we find him on August 29th, 1778, and from this period are enabled, from his remarks, to proceed fecurely accurate.

After croffing the Icy Sea from the most extreme part of the coast of

\* A pud is 40 Russian pounds, or 36 English.—Mr. Coxe. 1 In Harris's Voy. ii. 1016. § Voyage, iii. 270.

+ Voyage, iii. 268.

America

GEOGRAPHY BY CAPT. COOK.

CAPE NORTH.

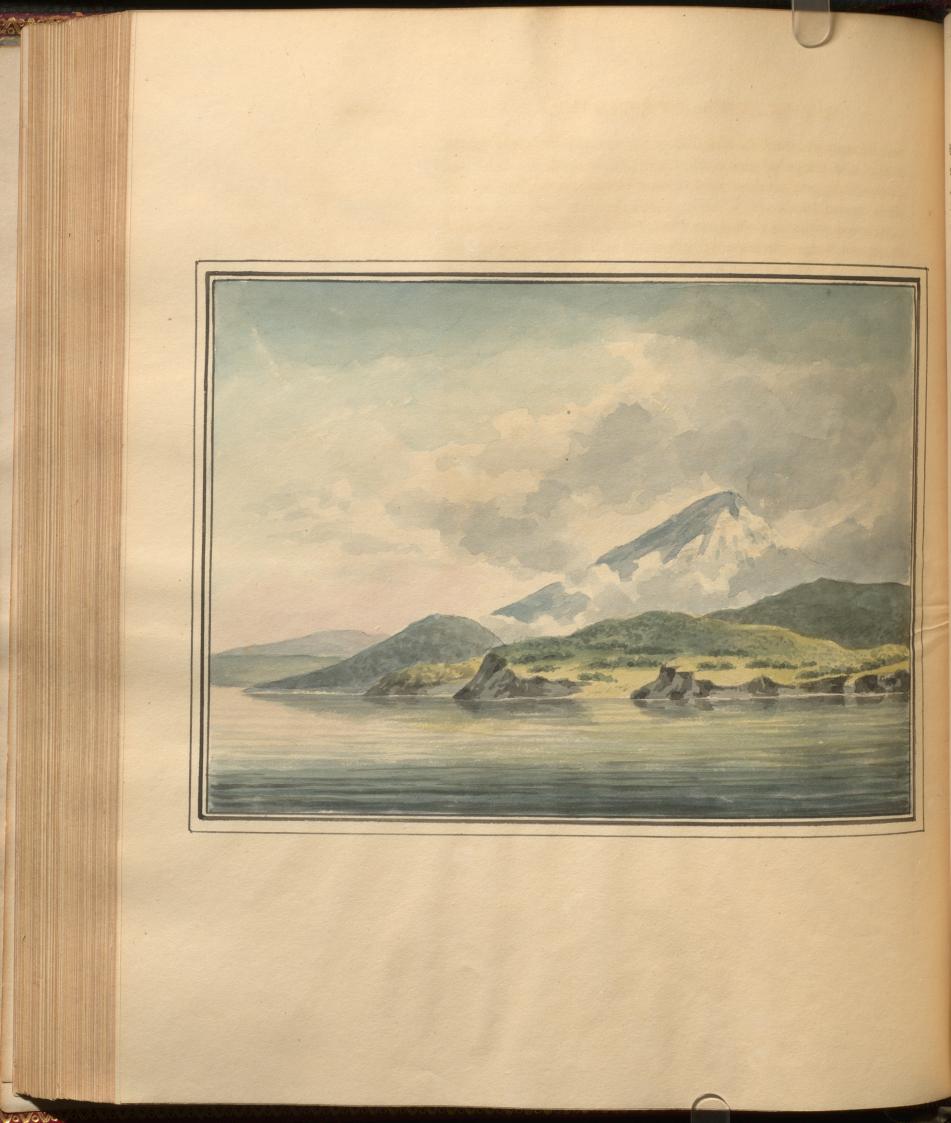
America which he could attain, he fell in with land. It appeared low near the fea, and high inland; and between both lay a great lake. To a steep and rocky point, nearly in lat. 68. 56, and long. 180. 51, his ne plus ultra on the Afiatic fide, he gave the name of Cape North; beyond which he could not fee any land, notwithstanding the weather was pretty clear. The fea, at three miles distance from the shore, was only eight fathoms deep: this, with a rifing wind, approaching fog, and apprehension of the coming down of the ice, obliging him to defift from farther attempts in these parts, he proceeded as near to the coast as he could with prudence, towards the BURNEY's ISLE. fouth-east, and found it retain the same appearance. In lat. 67. 45, he discovered a small isle, about three leagues from the main, with steep and rocky shores, on which he bestowed the name of Burney, in honor of one of his officers; gratefully immortalizing the companions of his voyage, in this and other inflances. After passing the island, the continent inland rose into mountains of considerable height, the termination of the great chain I before described.

SERDZE KAMEN.

In lat. 67. 3, long. 188. 11, he fell in with Serdze Kamen\*, a lofty promontory, faced towards the fea with a steep rocky cliff. To the eastward the coast continues high and bold, towards the North Cape low, being a continuation of the Artic flats. This was the northern limit of the voyage CAPT. BEHRING. of another illustrious navigator, Captain VITUS BEHRING, a Dane by birth, and employed on the same plan of discovery in these parts as our great countryman was in the late voyage. He was in the fervice of PETER the GREAT; who, by the strength of an extensive genius, conceiving an opinion of the vicinity of America to his Afiatic dominions, laid down a plan of discovery worthy of so extraordinary a monarch, but died before the attempt was begun; but his spirit survived in his successor. Behring, after a tedious and fatiguing journey through the wilds of Sibiria, arrived in Kamtschatka, attended with the scanty materials for his voyage, the greatest part of which he was obliged to bring with him through a thousand difficulties. Several of the circumstances of his adventures will

\* See tab. 84 of the Voyage.





be occasionally mentioned \*. I shall only say here, that he sailed from the river of Kamtschatka on July 15th, 1728; on the 15th of August saw Serdze Kamen, or the heart-shaped rock, a name bestowed on it by the first discoverer.

From Serdze Kamen to a promontory named by Captain Cook East Cape +, the land trends fouth-east. The last is a circular peninsula of high cliffs, projecting far into the sea due east, and joined to the land by a long and very narrow isthmus, in lat. 66. 6. This is the Tschutschi Noss of our navigators, and forms the beginning of the narrow streights or division of the old from the new world. The distance between Asia and America in this place is only thirteen leagues. The country about the cape, and to the north-west of it, was inhabited. About mid-channel are two small islands, named by the Russians the isles of St. Diomedes; neither of them above three or four leagues in circuit |. It is extremely extraordinary that BEHRING should have failed through this confined passage, and yet that the object of his mission should have escaped him. His missfortune could only be attributed to the foggy weather, which he must have met with in a region notorious for mists §; for he says that he saw land neither to the north nor to the east ¶. Our generous commander, determined to give him every honor his merit could clame, has dignified these with the name of Behring's Streights.

The depth of these streights is from twelve to twenty-nine or thirty fathoms. The greatest depth is in the middle, which has a slimy bottom; the shallowest parts are near each shore, which consists of fand mixed with bones and shells. The current or tide very inconsiderable, and what there was came from the west.

From East Cape the land trends south by west. In lat. 65. 36, is the bay in which Captain Cook had the interview with the Tschutschi. Imme-

\* The account of the voyage is extremely worthy of perufal, and is preferved by the able Doctor Campbell, in Harris's Collection, ii. 1018.

† See the Chart of them, Voyage, vol. ii. tab. 53. + See tab. 84 of the Voyage. § Voyage ii. 470, and Meteorolog. Tables, iii. App. 512, || Voy. ii. 445. iii. 243. Marris's Coll. ii. 1020. 513, 520, 521. Cc

diately

EAST CAPE.

I BEHRING's STREIGHTS.

DEPTH.

CURRENT.

Sr. LAURENCE.

diately beyond is the bay of St. Laurence, about five leagues broad in the entrance, and four deep, bounded at the bottom by high land. A little beyond is a large bay, either bounded by low land at the bottom, or so extensive as to have the end invisible. To the south of this are two other bays; and in lat. 64. 13, long. 186. 36, is the extreme fouthern point of the land of the Tschutschi. This formerly was called the Anadirskoi Noss. Near it Behring had conversation with eight men, who came off to him in a baidar, or boat covered with the skins of Seals; from which BEHRING and others have named it the Tschutschi Noss. A few leagues to ISLES OF CLERKE the fouth-east of this point lies Clerke's island, in lat. 63. 15, discovered by Captain Cook; and immediately beyond a larger, on which Behring bestowed the name of St. Laurence: the last, the resort of the Tschutschi in their fishing parties \*. Both of these consist of high cliffs, joined by low land. A finall island was feen about nineteen leagues from St. Laurence's, in a north-east by east half east direction; I suspect it to be that which Capt. Cook named Anderson's, in memory of his furgeon, who died off it, and from his amiable character feems to have well merited this memorial. It lies in lat. 63.4, long. 192. An anonymous iflet, imperfectly feen, and lying in lat. 64. 24, long. 190. 31, in mid-channel, completes the fum of those seen remote from land between the streights and the isle of St. Laurence. As to those named in the chart given by Lieut. Synd, who in 1764 made a voyage from Kamtschatka towards Behring's Streights, they feem to exist only in imagination, notwithstanding the Ruffian calendar has been exhaufted to find names for them. St. Agathon, St. Titus, St. Myron, and many others, fill the space passed over by Capt. Cook, and which could not have escaped the notice of his fucceffor +.

The land from Behring's Tichutski Noss trends vastly to the west, and bounds on that fide the vast gulph of Anadir, into the bottom of which

+ Coxe's Russian Discovery Map, p. 300 .-

<sup>\*</sup> Muller's Voy. des Ruffes, i. 148. Voy. iii. 503.

the river of the same name empties itself; and limits the territory of the Tschutschi.

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From thence is a large extent of coast trending south-west from Cape St. Thaddeus, in lat. 62. 50, long. 180, the fouthern boundary of the gulph of Anadir, to Oljutorskoi Noss, beyond which the land retires full west, and forms in its bosom a gulph of the same name. Off Thaddeus Noss appeared, on June 29th, abundance of WALRUSES and GREAT SEALS; and even the wandering Albatross was feen in this high latitude \*. Between this and the Penginsk gulph, at the end of the sea of Ochotsk, is the isthmus which unites the famous peninfula of Kamtfchatka to the main land, and is here about a hundred and twenty miles broad, and extends in length from 52 to 61, north lat. The coasts are often low: often faced with cliffs, in many parts of an extraordinary height; and out at fea are rude and fpiring rocks, the haunts of LEONINE SEALS, whose dreadful roarings are frequently the prefervation of mariners, warning them of the danger, in the thick fogs of this climate +. The coast has but few harbours, notwithstanding it juts frequently into great headlands. The most remarkable are, the North Head, with its needle rocks, at the entrance of the bay of Awatcha (Voyage, vol. iii. tab. 58); Cheepoonskoi Nofs, still further north, engraven in vol. ii. tab. 84; and Kronotskoi Noss, with its lofty cliffs. The peninfula widens greatly in the middle, and leffens almost to a point at Cape Lopatka, which flopes into a low flat, and forms the fouthern extremity of the country. The whole is divided lengthways by a chain of lofty rocky mountains, frequently covered with snow, and shooting into conic fummits, often fmoking with vulcanic eruptions. They have broken out in numbers of places: the extinct are marked by the craters. or their broken tops. The vulcano near Awatcha t, that of Tolbatchick, and that of the mountain of Kamtschatka &, are the modern. They burst out sometimes in whirlwinds of flames, and burn up the neigh-

VULCANES.

† See tab. 85, Voyage, § See Descr. Kamtsehatka,

Cc2

boring

<sup>\*</sup> Voyage iii. 241. † Descr. Kamtsch. 429. vol. iii.; and a description of its eruption, p. 235. tab. xv. p. 342.

boring forests: clouds of smoke succeed, and darken the whole atmosphere, till dispersed by showers of cinders and ashes, which cover the country for thirty miles round. Earthquakes, thunder, and lightning, join to fill the horror of the scenery at land; while at sea the waves rise to an uncommon height, and often divide so as to shew the very bottom of the great deep\*. By an event of this kind was once exposed to sight the chain of submarine mountains which connected the Kuril isses to the end of this great peninsula. I do not learn that they overslow with lava or with water, like the vulcanos of Europe. There are in various parts of the country hot springs, not inferior in warmth to those of Iceland †: like them they in some places form small jets d'eaux, with a great noise, but seldom exceed the height of a foot and a half ‡.

Hot Springs.

CLIMATE.

The climate during winter is uncommonly severe; for so low as Bolcheretsk, lat. 52. 30, all intercourse between neighbors is stopped. They dare not ftir out for fear of being frost-bitten. Snow lies on the ground from fix to eight feet thick as late as May; and the storms rage with uncommon impetuofity, owing to the fubterraneous fires, the fulphureous exhalations, and general vulcanic disposition of the country. The prevaling winds are from the west, which passing over the frozen wilds of Sibiria and Tartary, add keenness and rigour to the winters of Kamtschatka. Winter continues till the middle of June: from that month to the middle of September may be called fummer, if a feafon filled with rain, and milts, and ungenial skies, merits that name. Rye, barley, and oats, are committed to the earth, but feldom come to perfection. The fubfiftence of the Russians and Cossacks depends therefore on importation from Sibiria. In fome parts grass grows to a great height, and hay of uncommon nutriment is harvested for the fattening of cattle §. Grain is a luxury for the colonists only: the natives have other resources, the effects of necessity. Excepting in few places, this is a land of incorrigible barrenness. As foon as the SEA OTTERS and other precious furs are

exhausted,

<sup>\*</sup> Descr. Kamtsch. Fr. 340, 341. † Voyage, iii. 206, 332. † Descr. Kamtsch. Fr. 348, and tab. iv. v. in which are given the course of the warm streams. § Voy. iii. 327.

exhausted, Kamtschatka will be deserted by the Russians, unless they should think sit to colonize the continent of America, which the surs of that country, or the prospect of mineral wealth, may induce them to attempt.

Few ores have as yet been discovered in this peninsula: not that it wants either copper or iron; but every necessary in those metals is imported at so cheap a rate, that it is not worth while for a people ignorant in mining and smelting to search for them in the almost inaccessible mountains.

From the climate and the barren nature of Kamtschatka, the reader need not be furprized at the poverty of its Flora. It must not be supposed that the scanty enumeration of its plants arises from a neglect of search, or the want of a botanist to explore its vegetable kingdom. STELLER, a first-rate naturalist of Germany, who attended Behring in his last voyage, refided here a confiderable time after his escape from that unfortunate expedition, expressly to complete his remarks in natural history. The refult of his botanical refearches was communicated to Doctor Gmelin, another gentleman fent by the Russian government to examine into the natural history of its dominions. Europe has from time to time been ransacked for men of abilities to perform this meritorious mission, and the fruits of their labors have been liberally communicated to a public thirsting for knowlege. The names of Muller, GMELIN, STELLER, DE L'ISLE, KRASHANINICOFF, GUILDENSTAEDT, LEPECHIN, and PAL-LAS, will ever be held in respect, for adding to the stock of natural knowlege. But how much is it to be lamented that England wants a patron to encourage the translation of their works, locked up at present in Russian or German, concealed from the generality of readers, to the great suppression of knowlege!

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I here give a list of the plants of Kamtschatka in systematic order; and from it annex an account of the uses made of them by the natives of the peninsula. I must not omit my thanks to the Rev. Mr. Lightfoot, and the Rev. Mr. Hugh Davies of Beaumaris, for the great affishance I received from them. Let me premise, that the plants marked A. are com-

ORES;

PLANTS:

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mon to America and Kamtschatka; with B. to Behrino's Isle; with E. to England or Scotland; and with Virg. are distinguished those which extend to Virginia, or the eastern side of North America\*. It is remarkable, that the European plants, which had deserted Sibiria about the Jenesei, appear here in great abundance.

	E-LEDR SA TETRAL WHILE CO.
Veronica. Gmel. Sib. iii. 219. N° 33.	L. cærulea.
V. incana.	Ribes alpinum. A. E.
V. ferpyllifolia. E.	R. rubrum. Virg.
Iris fibirica.	R. groffularia. A. Virg.
Iris. Gm. Sib. i. 30. N° 28.	Claytonia virginica. A. Am. Acad
Dactylis. Gm. Sib. i. 130. Nº 68.	ii. 310
Bromus criftatus. Amen. Acad. ii.	Salfola proftrata 318
312. fel sid at one sus fi fel agen	Anabasis aphylla 319
Triticum. Gm. Sib. i. 119. Nº 56.	Heuchera americana 310
Plantago major. A. E. Virg.	Swertsia dichotoma 317
Pl. afiatica.	Sw. corniculata ibio
Sanguiforba canadensis. A.	Gentiana amarella. E.
Cornus fuecica.	G. aquatica. Am. Acad. ii. 316
Pulmonaria virginica. A. Am. Acad.	Heracleum panaces. A.
Silii, 310. 1 Establishment of the salt	Angelica archangelica.
Cerinthe major. A.	Ang. Sylvestris. E. Virg.
Cortufa Gmelini. Am. Acad. ii. 313.	Cicuta virosa.
Anagallis. Gm. Sib. iv. 87, 37.	Chærophyllum Sylvestre.
Azalea procumbens. E.	Chær. aureum?
Phlox fibirica. Am. Acad. ii. 314.	Sambucus racemofa.
Convolvulus perficus. Ibid.	Tradescantia. Virg?
Polemonium cæruleum. A. E.	Allium ursinum. E. Virg.
Lonicera Xylosteum. A?	Allium triquetrum.
of the same and and the same of the	A STATE OF THE PROPERTY OF THE

<sup>\*</sup> Taken from Doctor Forster's FLORA AMERICÆ SEPTENTRIONALIS. It is highly probable that many, not noted as such, may be common to both sides of the continent, notwithstanding they escaped the notice of Steller or our navigators.

Lilium

CXCV

Lilium martegon. L. Camschatcense. A. Virg. Am. Acad. ii. 320. Uvularia perfoliata. Convallaria bifolia. Juncus filiformis. E. Virg. J. campestris. E. Rumex acetofa. Virg. Melanthium sibiricum. Am. Acad. ii. 320. Trillium erectum. - - ii. 310. Alisma plantago aquatica. E. Alfinanthemos. Gm. Sib. iv. 116. Nº 86. Epilobium latifolium. Vaccinium myrtillus. A. E. Vac. uliginosum. E. Vac. vitis idæa. A. E. Vac. oxycoccos E. Virg. Erica. Gm. Sib. iv. 130. Nº 21. B. Er. Gm. Sib. iv. 131. N° 22. A. Bryanthus. Gm. Sib. iv. 133. Nº 23. Polygonum bistorta. E. Pol, viviparum. E. Adoxa moschatellina. A. E. Sophora Lupinoides. Am. Acad. ii. Ledum palustre. Andromeda. Gm. Sib. iv. 121. Nº 9. Chamærhododendros. Gm. Sib. iv. 126. Nº 13.

Rhododendron Kamtschataka. Fl.

Roff. 48. tab. xxxiii. B.

Arbutus uva ursi. E. Virg. Pyrola rotundifolia. E. Virg. Tiarella trifoliata. Am. Acad. ii. 322. Sedum verticillatum. Prunus padus. E. Sorbus aucuparia. E. Virg. Cratægus oxyacantha. Voyage, iii. 334. Spiræa hypericifolia. Am. Acad. ii. Sp. Sorbifolia. Spiræa. Gm. Sib. iii. 192. Nº 55. Sp. Camtichatika, Fl. Roff. 41. tab. xxviii. B. Spiræa. Gm. Sib. iii. 192. Nº 56. Sp. aruncus. Rofa alpina. Rubus Idæus. A. E. Virg. R. Cæfius. E. R. fruticofus. E. Virg. R. arcticus. Virg. R. chamæmorus. E. Fragaria vesca. A. E. Potentilla fruticofa. E. Dryas pentapetala. Actæa cimicifuga. Am. Acad. ii. 325. Papaver nudicaule. Aconitum napellus, Anemone narciffifolia. Anem. ranunculoides. Anem. Dichotoma. Am. Acad. ii. 310. Thalictrum flavum. E.

Ranunculus

KAMTSCHATICUM.

Ranunculus. Troillius europeus. E. Helleborus trifolius. Am. Acad. ii. 327. Bartsia pallida. ibid. Pedicularis verticillata. Linnæa borealis. Virg. Myagrum sativum. E. Thlaspi bursa pastoris. E. Virg. Arabis grandiflora. Turritis hirfuta. E. Geranium pratense. E. Lathyrus. Gm. Sib. iv. 85. Astragalus alopecuroides. Am. Acad. ii. 330. Astr. alpinus. Aftr. Gm. Sib. iv. 44. N° 58. Astr. physodes. Am. Acad. ii. 329. Hypericum. Gm. Sib. iv. 279. Nº 3. Picris hieracioides. E. Sonchus. Gm. Sib. ii. 13. Nº 13. Prenanthes repens. Am. Acad. ii. 331. Serratula noveboracensis. Virg. Circium. Gm. Sib. ii. 69. Nº 49. Cacalia fuaveolens. Am. Acad. ii. Artemisia vulgaris. A. E. Gnaphalium margaritaceum. Erigeron acre. A.E. Tuffilago. B. Gm. Sib. ii. 145. N° 125. - 136. N° 118. Lycop. Sanguinolentum. Senecio. -

After. A.B. Gm. Sib. ii. 175. Nº 145. After. - 186.N° 152. Solidago virga aurea. A. B. E. Solidago. Gm. Sib. ii. 170. Nº 190. Cineraria fibirica. Pyrethrum. A. B. Gm. Sib. ii. 203. Nº 170. Orchis bifolia. E. Virg. Orchis latifolia. E. Ophrys Camtscatca. Am. Acad. ii. Drachontium Camtscatcense. Am. Acad. ii. 332. Carex panicea. E. Virg. Carex. Gm. Sib. i. 139. Nº 77. Betula alba. E. Betula incana. Fl. Roff. 64. Betula nana. E. Virg. Betula alnus. A. E. Virg. Urtica dioica. E. Sagittaria latifolia. E. Pinus cembra. Pinus Larix. A. Virg. Pinus picea. Salix retufa. Salix viminalis. E. Empetrum nigrum. A. E. Virg. Populus alba. E. Juniperus communis. E. Equisetum hyemale. E. Virg. Afplenium Rhyzophyllum. Am. Acad. ii. 311. Virg. Lycopodium rupestre. Virg. ibid. 11. 333. The

Uses.

The Kamtschadales boast of their skill in the knowlege of the application of the vegetable kingdom to the uses of mankind. The Sibirians cure the venereal disease by a decoction of the root of the Iris Sibirica, which acts by purging and vomiting. They keep the patient eight days in a stove, and place him in a bed of the leaves of the Arstium Lappa, or common Burdock, which they frequently change till the cure is effected.

The Heracleum Panaces, or Sweet grass, was a plant of the first use with Sweet Grass. the Kamtschadales, and formerly made a principal ingredient in all their dishes; but so powerful does the love of hot liquors sway with the Russians, that, fince their arrival, it is entirely applied to distillation. The beginning of July the more succulent stalks and leaves are gathered; after the down is scraped off with shells, they are layed to ferment; when they grow dry, they are placed in bags, and in a few days are covered with a faccharine powder: only a quarter of a pound of powder is collected from a pood, or thirty-fix pounds of the plant, which tastes like liquorice. They draw the spirit from it by steeping bundles of it in hot water; then promote the fermentation in a small vessel, by adding the berries of the Lonicera Xylosteum, Sp. Pl. i. 248, and Vaccinium uliginofum, 499. They continue the process by pouring on more water, after drawing off the first: they then place the plants and liquor in a copper still, and draw off, in the common manner, a spirit equal in strength to brandy\*. Accident discovered this liquor. One year, the natives happening to collect a greater quantity of berries of feveral kinds, for winter provision, than usual, found in the spring that a great quantity had fermented, and become useless as a food. They resolved to try them as a drink, and mixed the juice with water. Others determined to experience it pure; and found, on trial, the Arttic beatitude, drunkenness +. The Russians caught at the hint, introduced distillation, and thus are enabled to enjoy ebriety with the production of the country.

\* Voyage, iii. 337.

+ Gmelin, Fl. Sib. i. 217.

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The

Moucho-More.

The Moucho-more of the Russians, the Agaricus muscarius, Sp. Pl. 1640, is another instrument of intoxication. It is a species of Toadstool, which the Kamtschadales and Koriaks sometimes eat dry, sometimes immersed in a fermented liquor made with the Epilobium, which they drink notwithstanding the dreadful effects. They are first seized with convulsions in all their limbs, then with a raving such as attends a burning sever; a thousand phantoms, gay or gloomy (according to their constitutions) present themselves to their imaginations: some dance; others are seized with unspeakable horrors. They personify this mushroom; and, if its effects urge them to suicide, or any dreadful crime, they say they obey its commands. To sit themselves for premeditated affassinations, they take the Moucho-more. Such is the sascination of drunkenness in this country, that nothing can induce the natives to sorbear this dreadful potion \*!

SARANNE.

As a food, the Saranne, or Lilium Kamtschatcense, is among the principal. Its roots are gathered by the women in August, dried in the sun, and layed up for use: they are the best bread of the country; and after being baked are reduced to powder, and serve instead of flour in soups and feveral dishes. They are fometimes washed, and eaten as potatoes; are extremely nourishing, and have a pleasant bitter taste. Our navigators boiled and eat them with their meat. The natives often parboil, and beat them up with feveral forts of berries, fo as to form a very agreeable confection. Providentially it is an univerfal plant here, and all the grounds bloom with its flower during the feafon †. Another happiness remarked here is, that while fish are scarce, the Saranne is plentiful; and when there is a dearth of this, the rivers pour in their provisions in redoubled profusion. It is not to the labors of the females alone that the Kamtschadales are indebted for these roots. The ŒCONOMIC MOUSE, Hift. Quadr. II. Nº 313, faves them a great deal of trouble. The Saranne forms part of the winter provisions of these little animals: they not only gather them in the proper feason, and lay them up in their magazines, but at times have

\* Hift. Kamtschatka, 99, 100.

+ Desc. Kamtsch. 363.

the instinct of bringing them out, in sunny weather, to dry them, least they should decay\*. The natives search for their hoards; but with prudent tenderness leave part for the owners, being unwilling to suffer such useful caterers to perish.

Let me add, that STELLER enumerates other species of the Lilly genus, which I believe are edible. Every species of fruit, except berries, is denied to this unkind climate; but the inhabitants use various forts of them as wholesome substitutes, which they eat fresh, or make into palatable jams, or dress with their sish, either fresh or when preserved for winter use: such are those of the Lonicera Xylosteum or Gimolost, a sort of Honeysuckle: the Rubus Chamæmorus, Morochka, or Cloudberries: the Vaccinium Myrtillus, Uliginosum, Vitis Idæa, and Oxycoccos, or Bilberries, Marsh Bilberries, Red Bilberries, and Cranberries: the Empetrum Nigrum, or Heathberries: the Prunus Padus, or Bird Cherry: Cratægus Oxyacantba, or White Thorn with red and with black berries: the Juniperus Communis, or Common Juniper: and finally, those of the Sorbus Aucusparia, or Common Service.

Of the Epilobium Latifolium, Sp. Pl. 494, or Kipri, is brewed a common beverage; and, with the affiftance of the Sweet Plant, is made an excellent vinegar: the leaves are used as a tea, and the pith is mixed with many of the dishes, and served up green as a desert. When the infusion of it is mixed with the Sweet Herb in the distillation, much more brandy is procured than if water alone is used †.

The Polygonum Bistorta, Snake-weed, or Jikoum, is eaten fresh or dried, and often pounded with the Caviar. The Chærophyllum Sylvestre, Wild Chervil, or Cow-weed, the Morkavai of the natives, is eaten green in the spring, or made into sour krout. The Solidago Itschitschu, Fl. Sib. ii. 170, is dried and boiled with fish; and the broth from it tastes as if the slesh of the Argali or wild sheep had been seethed in it. The root of Kotkonnia, a species of Tradescantia, is eaten either fresh, or used with the roes of fish: the berries have an agreeable acidity, like an unripe apple, but will not

\* PALLAS, Nov. Sp. Mur. 230. + Defc. Kamisch. 368.

Dd 2

keep,

RUBUS CHAMEMORUS.



keep, therefore they must be eaten as soon as they are gathered, Allium Ursinum, Tcheremcha, our Wild Garlic, is very common, and useful in medicine as well as food; both Russians and natives gather it in great quantities for winter fervice: they steep it in water, then mix it with cabbage, onions, and other ingredients, and form out of them a ragout, which they eat cold. It is also the principal remedy for the scurvy. As foon as this plant appears above the fnow, they feem to put this dreadful diforder at defiance, and find a cure almost in its worst stages. The Potentilla fruticosa, Sp. Pl. i. 709, or Shrubby Cinquefoil, is very efficacious in the dysentery, or in fresh wounds. The Dryas Pentapetala, Sp. Pl. i. 717, or Ichagban, is employed in swellings or pains of the limbs. That dreadful poison the Cicuta virosa, Sp. Pl. i. 366, Water Hemlock, the Omeg, is applied to use, by the bold practitioners of this country, in cases of pains in the back. They sweat the patient profusely, and then rub his back with the plant, avoiding to touch the loins, which, they fay, would bring on immediate death.

The trees of use are a dwarf species of *Pinus Cembra*, or Pine with edible kernels; it grows in great quantities on both the mountains and plains, covered with moss. It never grows upright, but creeps on the ground, and is therefore called by the *Russians*, *Slanetz*. The natives eat the kernels, with even the cones, which brings on a tenesmus; but the chief use of the tree is as a sovereign medicine in the scurvy. Behring taught the *Kamtschadales* to make a decoction of it: but they have neglected his instructions, notwithstanding they saw numbers of his people restored to health in a short time, and snatched, as it were, from the jaws of death\*. Even at this time the *Russian* colonists perish miserably with the disorder, notwithstanding the remedy is before their eyes.

The Pinus Larix, or Larch-tree, grows only on the river of Kamtfchatka, and the streams which run into it. This tree is of the first use in the mechanical services of the country: with it they build their houses,

their

TREES.

<sup>\*</sup> Voyage, iii. 332.—Gm. Fl. Sib. i. 181.—Respecting the trees, consult Voyage, iii. 332. Desc. Kamtschatka, 359, and the preceding catalogue.

### KAMTSCHATKA.

their fortifications, and boats. They make use of the Populus alba, or White Poplar, for the same purposes. Of the Betula alba, or Common Birch, a tree so useful to these northern nations, they make their sledges and canoes; and cut the fresh bark into small slices like vermicelli, and eat it with their dried caviar; they also tap the trees, and drink the liquor without any preparation. With the bark of the Alder they dye their leather; but that, and every tree they have near the coast, is stunted, so that they are obliged to go far inland for timber of proper size.

The Populus Balfamifera, Fl. Ross. 77. tab. xli. the Taccamabaca of the Americans, Catesby i. 34, is found on the river Bolschaja. It is common to North America, Kamtschatka, and Sibiria. In the last it abounds about the upper part of the Lena, about the Jenesei, Irtisch, Angara, and Argun. A decoction of it is used with success in the scurvy, and in a certain stage of an infamous distemper\*, which almost generally pervades this vast region.

I must add, as a vegetable of use in œconomics, the Triticum, Gm. Sib. i. 119, N° 56, which grows in great quantities along the shores, which they mow, and work into mats, which serve for bedelothes and curtains; into mantles, smooth on one side, and with a pile on the other, which are water-proof. They also make with it sacks, and very elegant baskets; these, as well as the mats, they ornament with split whale-bones, and work into variety of sigures. The Urtica Camabina or Hemp Nettle, Sp. Pl. ii. 1396. Amm. Ruth. 173. tab. xxv. is another plant of great use: this they pluck in August or September, tie in bundles, and dry on their huts: they tear it to pieces, beat, and clean it; then spin it between their hands, and twist the thread round a spindle. It is the only material they have to make their nets; which, for want of skill in the preparation, will rot, and last no longer than one season ‡.

In respect to the quadrupeds of this country, I have reason to think, from the great affistance I have received from the Russian academicians, or

CCI QUADRUPEDS URTICA.

\* Fl. Sib. iii. p. 31.

† Hist. Kamtschatka, 373:

‡ Fl. Sib. i. 152, 153.

their

#### KAMTSCHATKA.

their labors, that my account of them, in my zoological part of this Work, can receive little addition. I request that the Brown Bear may be substituted instead of the Black, as the native of Kamtschatka. I was led into the mistake by the suspicions of a most able naturalist. I am since informed, by the best authority, (that of Captain King\*) that it is the brown species which is found there; that they are carnivorous, and prey at times on the Argali or wild sheep; but do not attack man, except urged by extreme hunger, or provoked by wounds, or by the slaughter of their young; when nothing but their death can secure the safety of the persons who sall in their way. In the first case, they will hunt mankind by the scent, and sacrifice them to their want of food, which usually is sish or berries.—The Kamtschadales never read Pope, but observe his advice:

Learn from the Beafts the physic of the field.

The Bear is their great master; and they owe all their knowlege in medicine and surgery, and the polite arts, to this animal. They observe the herbs to which he has recourse when he is ill, or when he is wounded, and the same simples prove equally restorative to the two-legged Ursine race. The last even acknowlege the Bear as their dancing-master, and are most apt scholars in mimicking his attitudes and graces †. I was informed by one of the gentlemen who was on the voyage, that the Sea Otter was seen on the first arrival on the American coast; but, as it is not mentioned in that excellent and magnificent work till the arrival of the ships in Nootka sound, I will not insist on the accuracy of its latitude.

ARGALI.

The Argali yields a dish of most excellent flavor. The natives work the horns into spoons, small cups, and platters; and have frequently a small one hanging at their belts, by way of a drinking horn, in their hunting expeditions ‡.

Dogs.

The Dogs are like the Pomeranian, but vastly larger; the hair rather

\* See Voy. iii. 304 to 308, where Captain King gives a full account of the present method of hunting.

† Voy. iii. 308.

‡ Same, 344.

coarser,

SEALS.

coarfer, and the usual color light dun, or dirty creme-color. Bitches are never used for the draught, but dogs alone; which are trained to it from their puppy-hood, by being tied with thongs to stakes, with their food placed at a small distance beyond their reach; so that by conftant laboring and straining, they acquire both strength of limb and habit of drawing \*.

The LEONINE and URSINE SEALS, and the MANATI, must have been on their migrations during the time the navigators visited this peninsula; for they faw not one of those curious animals. The COMMON SEALS, being flationary, were met with in great numbers. The bottle-nosed Seal, or Sea Lion of Lord Anson, is totally unknown in these seas. I refer the reader, for a view of the quadrupeds and birds of Kamtschatka, to the catalogue which Captain King honored with a place in the third volume of the Voyage +. I shall only add, that the class of Auks is far the most numerous of any, and contains fix species unknown to Europe; that the only bird which has escaped me is a small Blue Petrel +, seen in numbers in about lat. 59. 48, off the northern part of the peninfula.

Kamtschatka is destitute of every species of serpent and frog. Lizards are very frequent, and are detefted by the natives, who believe them to be fpies fent by the infernal gods to examine their actions, and predict their deaths. If they catch one, they cut it into small pieces, to prevent it from giving any account of its mission: if it escapes out of their hands, they abandon themselves to melancholy, and expect every moment their diffolution; which often happens through fear, and ferves to confirm the superstition of the country §. The air is very unfavorable to infects, except lice and fleas, which are in all their quarters; and, filthy to relate! are

INSECTS.

REPTILES

\* Voy. iii. 345.

+ By some typographical mistake, the greater part of the webbed-footed birds are, in the first edition, placed under the division of cloven-footed. The naturalist reader will eafily fee, that the birds, from CRANE, p. 357, to PIED OYSTER-CATCHER, ought to be placed in the division of cloven-footed; and from GREAT TERN, p. 356, to RED-FACED CORVORANT, p. 357, should be put after RED-THROATED DIVER, p. 358, the webbed-footed.

& Descr. Kamtsch. Fr. 509. 1 Narrative, ii. 246.

eaten

eaten by these beastly people\*. Bugs are acquisitions of late years, imported into the bay of Awatcha.

FISH.

The fish of Kamtschatka are with difficulty enumerated. There does not feem to be any great variety of genera; yet the individuals under each species are found in most astonishing abundance. Providence hath been peculiarly attentive to the natives of this peninfula, by furnishing them in fo ample a manner, who for the greater part must for ever be deprived of support derived from grain and cattle. The vegetables they have are fufficient to correct the putrescent quality of the dried fish, and often form an ingredient in the dishes; which are prepared different ways. The Joukola is made of the falmon kind, cut into fix pieces, and dried either in the open air or smoked: the roes are another dish in high esteem with them, either dried in the air, or rolled in the leaves of different plants, and dried before the fire. They can live a long time on a small quantity of this food, and eat with it the bark of birch or willow trees, to affift them in swallowing a food so very viscid; but their ambrosial repast is the Huigul, or fish flung into a pit till it is quite rotten, when it is served up in the state of carrion, and with a stench unsupportable to every nose but that of a Kamtschadale +.

WHALE.

The Fin Whale, Br. Zool. iii. N° 18, is very frequent, and is of fingular use to the inhabitants. They eat the flesh; preserve the fat for kitchen use and for their lamps; with the corneous laminæ they sew the seams of their canoes, and make nets for the larger sort of fish; they form the sliders of their sledges with the under jaw-bones, and likewise work them into knives; with the blade-bones, worked down to a sharp edge, they form scythes, and most successfully mow the grass. The Tschutschi verify the relation of Pliny ‡, and, like the Gedross of old, frame their dwellings with the ribs §; with the ligaments they make excellent snares for different animals; with the intestines dried, cleaned, and blown, they make bags for their grease and oil; and with the skins the soles of their shoes, and

<sup>\*</sup> Descr. Kamtschatka, Fr. 507. † Hist. Nat. lib. ix. c. 3.

<sup>+</sup> Hift. Kamtschatka, Engl. 194. Fr. 46.

<sup>§</sup> Voyage, iii. 450.

straps and thongs for various purposes. The Tschutski take these animals by harpooning; the Oloutores, in nets made of thongs cut out of the skins of the Walrus; and the Kamtschadales, by shooting them with darts or arrows, the points of which, having been anointed with the juice of the Zgate, a species of Anemone and Ranunculus\*, are so noxious as to bring speedy death from the slightest wound, like the celebrated poison of the Paragua Indians. The vast animals in question, when struck with it, are infected with such agonies that they cannot bear the sea, but rush on shore, and expire with dreadful groans and bellowing.

THE GRAMPUS, Br. Zool. iii. N° 26, is very common in these seas: they are dreaded by the natives, who even make offerings to them, and entreat their mercy, least they should overset their boats; yet, if these fish are thrown on shore, they apply them to the same uses as the Whale †.

The Motkoia or Akoul, or White Shark, Br. Zool. iii. N° 42, is among the useful fish. They eat the flesh, and form of the intestines and bladder, bags to hold their oil. In the chase of this fish they never call it by its name, for fear of provoking it to burst its bladder.

Lampries, Br. Zool. iii. N° 27; Eels, — 57; Wolf-fish, the Kufatfehka of the Rushans, is here of most uncommon fierceness, — 65; common Codfish? — 73; Hadock, — 74; and Hake, — 81, are found in the Kamtschatkan sea: and I also suspect, that the three-bearded Cod, — N° 87, is also met with: it is called there Morskie Nalimi. An elegant species of Flounder, of excellent flavor, was taken here in abundance by our navigators: the back was studded with prickly tubercles, and marked longitudinally with lines of black on a brown ground. The Jerchei, possibly our Russe, — N° 127, is among the fish of the country; as is a species of the English Sticklebacks.

But the fish of the first importance to the Kamtschadales, and on which

\* I cannot discover the species. Gmelin, in his Flora Sibirica, does not give the lest account of these plants. † Descr. Kamtsch. 462. ‡ Same, 466.

Ee

§ Br. Zool. iii. 261.

GRAMPUS.

SALMON.

they

they depend for sublistence, are the anadromous kinds, or those which at ftated feafons afcend the rivers and lakes out of the fea. Thefe are entirely of the Salmon genus, with exception to the common Herring, which in autumn quits the falt water. It is fayed, that every species of Salmon is found here. I may with certainty adjoin, that feveral of the Sibirian species, with variety peculiar to this country, ascend the Kamtschadale rivers in multitudes incredible. The inhabitants dignify some of their months by the names of the fish. One is called Kouiche, or the month of Red Fishes; another, Ajaba, or that of Little White Fish; a third, Kaiko, or of the fish Kaiko; and a fourth, Kijou, or the month of the Great White Fish\*. It is observable, that each shoal keeps apart from others of different species, and frequently prefers a separate river, notwithstanding the mouths may be almost contiguous. They often come up in fuch numbers as to force the water before them, and even to dam up the rivers, and make them overflow their banks; infomuch that, on the fall of the water, fuch multitudes are left on dry ground, as to make a stench capable of causing a pestilence, was it not fortunately dispersed by the violence of the winds; befides, the bears and dogs affift, by preying on them, to lessen the ill effects.

Every species of Salmon dies in the same river or lake in which it is born, and to which it returns to spawn. In the third year, male and semale consort together, and the latter deposits its spawn in a hole formed with its tail and fins in the sand; after which both sexes pine away, and cease to live. A fish of a year's growth continues near the place, guards the spawn, and returns to the sea with the new-born fry in November to the Salmons of this country spawn but once in their lives: those of Sibiria and Europe, the rivers of which are deep, and abound with insect food, are enabled to continue the first great command of nature frequently during the period of their existence. In Kamtschatka the rivers are chilly, shallow, rapid, full of rocks, and destitute of nourishment for such multitudes: such therefore which cannot force their way to the neighborhood of the

\* Hist. Kamtsch. 218.

+ Descr. Kamtsch. 471.

tepid streams, or get back to the sea in time, universally perish; but Providence has given fuch refources, in the spawners, that no difference in numbers is ever observed between the returning seasons. It is singular, that neither the lakes or rivers have any species of fish but what come from the sea. All the lakes (for this country abounds with them) communicate with the sea; but their entrance, as well as that of many of the rivers, is entirely barred up with fand brought by the tempestuous winds, which confine the fish most part of the winter, till they are released by the storms taking another direction.

The species which appears first is the Tshawytscha. This is by much Tshawytscha. the largest; it weighs sometimes between fifty and fixty pounds, and its depth is very great in proportion to the length. The jaws are equal, and never hooked: the teeth large, and in feveral rows: the scales are larger than those of the common Salmon; on the back dusky grey, on the sides filvery: the fins bluish white, and all parts unspotted: the tail is lunated: the flesh, during its residence in the sea, is red; but it becomes white in fresh waters. It is confined, on the eastern side of the peninsula, to the river of Kamtschatka and Awatcha; and on the western to the Bolchaia-reka, and a few others; nor is it ever feen beyond lat. 54. It enters the mouths of the rivers about the middle of May, with fuch impetuofity as to raife the water before it in waves. It goes in far less numbers than the other species; is infinitely more esteemed; and is not used as a common food, but referved for great entertainments. The natives watch its arrival, which is announced by the rippling of the water; take it in strong nets; and always eat the first they take, under a notion that the omission would be a great crime.

The Nærka is another species, called by the Russians, Krasnaya ryba, from the intense purplish redness of the slesh. It is of the form of the common Salmon; but never exceeds fixteen pounds in weight. When it first enters the rivers it is of a silvery brightness, with a bluish back and fins: when it leaves the fea the teeth are fmall, and jaws strait; but after

\* P. D. 12. P. 16. V. 10. A. 15.

NÆRKA.

P. D. 11. P. 16.

V. 10. A. 15.

\* Numbers of rays in the dorfal, pectoral, ventral, and anal fins.

E e 2

## KAMTSCHATKA

it has been some time in the fresh water, the jaws grow crooked (especially in the male) and the teeth large. It begins to ascend the rivers in vast numbers in *June*; penetrates to their very sources; and returns in *September* to the sea, first resting for some time in the deep parts of the intervening lakes. It is taken in nets, either in the bays, as it approaches the rivers, or in the rivers, after it has quitted the sea.\*

The Kysutch, or Bjelaya ryba, or White Fish of the Russians, ascends the rivers in July, particularly such as are discharged from the inland lakes, and remain till December, when all the old fish perish, and the fry take to the sea. The upper jaw of the male, in its last period, becomes crooked. This species has the form of a common Salmon, but never attains three feet in length. It is of a silvery glossy color, spotted about the back; but in the rivers acquires a reddish cast: the jaws are long and blunt: the teeth large: the sless is reddish before it quits the sea; but in the fresh water grows white. It is reckoned the most excellent of the light-colored sish.

The Keta or Kayko, in form and fize refembles the last; but the head is shorter and more blunt: the tail is lunated: the slesh white: the color of the scales a filvery white: the back greenish; and the whole free from spots. It ascends the rivers in July, and the sishery continues till Ostober. This species is found in great abundance; and is so common, that the Joukola made with it is called houshold bread.

The Gorbuscha, or Hunch-back, arrives at the same time with the last. In form it resembles the Grayling: never exceeds a foot and a half in length: is of a silvery color, and unspotted: the tail forked: the slesh white. After it has been some time in the fresh water it changes its shape (the male especially) in a most surprizing manner. The jaws and teeth grow prodigiously long, especially the upper, which at first is shortest, but soon shoots beyond the under, and grows crooked downwards; the body becomes emaciated, and the meat bad: but what is most characteristic, an enormous bunch rises just before the first dorsal fin, to

\* This species is described (Voyage, ili. 351) under the name of Red Fish; the preceding, in p. 350, under that of Tschavits.

which

Кузитсн. Р. D. 11.

P. 14. V. 10.

V. 10. A. 14.

KETA.

P. D. 14. P. 15.

V. 11.

A. 18.

GORBUSCHA.
P. D. 12.

P. 15. V. 10.

A. 15.

which it owes its name. Its flesh is bad; so that this species falls to the share of the dogs.

The Malma, or Golet of the Russians, grows to the weight of twenty pounds, and to the length of about twenty-eight inches. It is the most slender and cylindrical of all the genus. The head resembles that of a trout: the scales are very small: the back and sides bluish, with scattered fpots of scarlet red: the belly white; ventral and anal fins red: tail flightly forked. This and the two following are sporadic, going disperfedly, and not in shoals. It ascends the rivers with the last, and attains their very fources. It feeds on the spawn of the other species, and grows very fat. The natives falt those they take in autumn, and preserve frozen those which are caught when the frosts commence \*.

The Milktschitsch is a scarce species, in form like a young Salmon; but MILKTSCHITSCH. the scales larger in proportion, and the body more flat: it never exceeds a foot and a half, in length: is of a filvery white, with a bluish back: nose conical: jaws equal: tail flightly forked.

The Mykiss appears at first very lean, but grows soon fat: it is very voracious: feeds not only on fish, but insects and rats, while swimming over the rivers; and is so fond of the berries of vaccinium vitis idea, that it will dart out of the water, and fnatch at both leaves and berries, which hang over the banks †. In shape it resembles a common Salmon: seldom grows above two feet long: has large scales, blunt nose, and numerous teeth: the back is dufky, marked with black spots; and on each fide is a broad band of bright red: the belly white. It is a species of excellent flavor; but is scarcer than the other kinds. Its time of arrival is not known: M. STELLER therefore suspects that it ascends the rivers beneath the ice ‡.

The Kunsha, mentioned in page clxxv, frequents the bays of this country, but never advances inland; and grows to the length of two feet: the nose is short and pointed: the back and sides dusky, marked with great yellowish ipots, fome round, others oblong: the belly white: the lower fins and tail

MALMA.

P. D. 12.

P. 14. V. 8.

A. 10.

P. D. 11.

P. 14.

V. 10.

A. 13.

MYKISS.

P. D. 12.

P. 14. V. 10.

A. 12.

KUNSHA.

\* Deser. Kamtsch. 482.

+ Same, 482.

1 Same, 482.

blue:

blue: the flesh white, and excellent. It is a scarce fish in these parts; but near Ochotsk ascends the rivers in great shoals.

I conclude this division of the tribe with the common Salmon, which is frequent here, and, like the others, ascends the rivers, equally to the advantage of the natives of the country.

INGHAGHITSH.

P. D. 8, 9. P. 12. V. 10. A. 12. Of the Salmon which Linnæus distinguished by the title of Coregoni is the Inghaghitsh, which has the habit of a small carp, with very large scales: the jaws nearly of equal length: the eyes very great, and silvery: the teeth very minute: the body silvery, bluish on the back: tail forked: it does not exceed five inches in length. It arrives in spring and autumn, and in both seasons is full of spawn, and simells like a Smelt.

INNYAGHA.

The Innyagha is another small kind, about five inches long, and not unlike the S. Albula of LINNÆUS. It is a rare species, and found but in few rivers. P. D. 9. P. 11. V. 8. A. 16.

OUIKI.

The most singular is the Ouiki, or Salmo Catervarius of Steller. It belongs to the Osmeri of Linnæus. Swims in immense shoals on the eastern coast of Kamtschatka, and the new-discovered islands, where it is often thrown up by the sea to the height of some seet, upon a large extent of shore: is excessively unwholesome as a food, and causes sluxes even in dogs. It never exceeds seven inches in length. Just above the side-line is a rough fascia, beset with minute pyramidal scales, standing upright, so as to appear like the pile of shag: their use is most curious—while they are swimming, and even when they are slung on shore, two, three, or even as many as ten, will adhere as if glued together, by means of this pile, insomuch that if one is taken up, all the rest are taken up at the same time.

To conclude this lift of Kamtschadale Salmon, I must add the Salmo Thymallus, or Grayling; the S. Cylindraceus, before described; the Salmo Albula, Lin. Syst. 512; and the Salmo Eperlanus, or common Smelt, to those which ascend the rivers.—For this account I am indebted to Doctor Pallas, who extracted it from the papers of Steller, for the use of this Work.

To these I may add, from the Spicilegia Zoologica of Doctor Pallas, Fasc. vii.

vii. 13, tab. ii. the Cyclopterus Ventricosus or Daechpu of the Kamtschadales, which is often flung on shore and eaten by the natives. They call it libidinous and incestuous, for they say it watches the women as they walk along the shore, and casts a most lustful eye towards them.

The Cyclopterus Gelatinosus, Fasc. vii. 19, tab. iii. is another species, in substance a perfect gelly, and so filthy and fetid, that even the dogs starving with hunger results to eat it.

The Cottus Japonicus, Fasc. vii. 30, tab. v. is taken in these seas off the Kuril Isles, but more plentifully off Japan. It is defended like our armed Bull-head, but is of a much more elegant form.

The Herring, both the common and the variety, found in the gulph of Bothnia, called the Membras, and by the Suedes, Stroeming, Faun. Suec. p. 128, visit these coasts in shoals, perhaps equal to those of Europe. There are two seasons, the first about the end of May, the second in Ostober. The first species are remarkably fine and large \*; they ascend the rivers, and enter the lakes: the autumnal migrants are closed up in them by the shifting of the sand at the mouths of the entrance, and remain confined the whole winter. The natives catch them in summer in nets; and in winter in most amazing numbers, by breaking holes in the ice, into which they drop their nets, then cover the opening with mats, and leave a small hole for one of their companions to peep through, and observe the coming of the fish; when they draw up their booty: and string part on packthread for drying; and from the remainder they press an oil white as the butter of Finland †.

The sea, on which these people depend for their very existence, is finely adapted for the retreat and preservation of fish. It does not consist of a level uniform bottom, liable to be ruffled with storms, but of deep vallies and losty mountains, such as yield security and tranquillity to the finned inhabitants. We find the soundings to be most unequal: in some places only twenty-two fathoms, in others the lead has not sound a bottom with a hundred and sixty fathoms of line. On such places the fish might rest un-

HERRING.

SEA.

\* Voyage, iii. 350.

+ Descr. Kamtsch. 485.

disturbed

disturbed during the rage of the tempestuous winters. I do not find the lest notice of shells being met with in these seas: either there are none, or they are pelagic, and escape the eyes of the navigators. But nature probably hath made ample provision for the inhabitants of the sea, in the quantity of sea-plants which it yields; Steller, the great explorer of this region, enumerates the sollowing, many of which are of uncommon elegance:

Fucus peucedanifolius, Gm.	Hist.	Fucus rofa marina - 102
Fucor	- 76	Fucus crenatus 160
Fucus turbinatus -	- 97	Fucus fimbriatus - 200
Fucus corymbiferus, E.	- 124	Fucus angustifolius 205
Fucus dulcis, E	- 189	Fucus agarum 210
Fucus tamariscisolius *, E.		Fucus quercus marina †
Fucus bifidus	- 201	Fucus vesiculosus, Sp. Pl. 1626, E.
Fucus polyphyllus -		Ulva glandiformis - 232
Fucus clathrus	- 211	Ulva Priapus 231
Fucus myrica	- 88	

Of these the Quercus marina is used as a remedy in the dysentery; and the females of Kamtschatka tinge their cheeks with an infusion of the Fucus tamariscifolius in the oil of Seals.

TIDES:

In the harbours of Sts. Peter and Paul the greatest rise of the tides was five seet eight inches at full and change of the moon, at thirty-six minutes past sour, and they were very regular every twelve hours. The Rushan philosophers observed here a singular phænomenon in the slux and resux of the sea twice in the twenty-sour hours, in which is one great flood and one small flood; the last of which is called Manikha. At certain times nothing but the water of the river is seen within its proper channel; at other times, in the time of ebb, the waters are observed to overslow their banks. In the Manikha, after an ebb of six hours, the water sinks about three seet, and the tide returns for three hours, but does not rise above a

\* Hift. Kamtschatka, 43.

f Same, 124.

† Voyage, iii. 323.

foot;

foot; a seven-hours ebb succeeds, which carries off the sea-water, and leaves the bay dry. Thus it happens three days before and after the full moon; after which the great tide diminishes, and the Manikha, or little tide, increases \*.

The rivers of the country rise in the midst of the great chain of mountains, and flow on each fide into the feas of Ochotsk, or that of Kamtschatka. They furnish a ready passage in boats or canoes (with the intervention of carrying-places) quite across the peninsula. As has been mentioned, the waters yield no fish of their own, but are the retreat of myriads of migrants from the neighboring feas.

This peninfula, and the country to the west, are inhabited by two nations; the northern parts by the Koriacs, who are divided into the Reindeer or wandering, and the fixed Koriacs; and the fouthern part by the Kamtschadales, properly so called: the first lead an erratic life, in the tract bounded by the Penschinska sea to the south-east; the river Kowyma to the west; and the river Anadir to the north †. They wander from place to place with their Rein-deer, in fearch of the moss, the food of those animals, their only wealth. They are squalid, cruel, and warlike, the terror of the fixed Koriacs, as much as the Tschutski are of them. They never frequent the fea, nor live on fish. Their habitations are jourts or places half funk in the earth: they never use balagans, or fummer-houses elevated on posts, like the Kamtschadales: are in their persons lean, and very thort: have small heads and black hair, which they shave frequently: their faces are oval: nofe short: their eyes small: mouth large: beard black and pointed, but often eradicated. A has anim bas anoth grimmel

The fixed Koriacs are likewise short, but rather taller than the others, and ftrongly made: they inhabit the north of the peninfula! the Anadir is also their boundary to the north; the ocean to the east; and the Kamtschadales to the fouth. They have few Rein-deer, which they use in their sledges; but neither of the tribes of Koriacs are civilized enough to apply them to the purposes of the dairy. Each speak a different dialect of the same

NATIVES.

KORIACS. WANDERING.

FIXED.

\* Defer. Kamtsch. 510. + Hist. Kamtsch. 136.

Ff

language;

# KAMTSCHATKA.

language; but the fixed in most things resemble the Kamtschadales; and, like them, live almost entirely on fish. They are timid to a high degree, and behave to their wandering brethren with the utmost submission; who call them by a name which signifies their slaves. These poor people seem to have no alternative; for, by reason of the scarcity of Rein-deer, they depend on these tyrants for the essential article of cloathing. I cannot trace the origin of these two nations; but from the seatures may pronounce them offspring of Tartars, which have spread to the east, and degenerated in size and strength by the rigour of the climate, and often by scarcity of food.

KAMTSCHA-DALES. The true Kamtschadales posses the country from the river Ukoi to the southern extremity, the cape Lopatka. They are supposed, by M. Steller, to have been derived from the Mongalian Chinese, not only from a similarity in the termination of many of their words, but in the resemblance of their persons, which are short. Their complexion is swarthy: their beard small: their hair black: sace broad and stat: eyes small and sunk: eye-brows thin: belly pendent: legs small—circumstances common to them and the Mongalians. It is conjectured, that in some very remote age they sled hither to escape the yoke of the eastern conquerors, notwithstanding they believe themselves to be aboriginal, created and placed on the spot by their god Koutkou.

RELIGION.

In respect to their deity, they are perfect minute philosophers. They find fault with his dispensations; blaspheme and reproach him with having made too many mountains, precipices, breakers, shoals, and cataracts; with forming storms and rains; and when they are descending, in the winter, from their barren rocks, they load him with imprecations for the fatigue they undergo. In their morals they likewise bear a great similitude to numbers among the most polished rank in the European nations—they think nothing vitious that may be accomplished without danger; and give full loose to every crime, provided it comes within the pale of security.

GENII.

They have also their lesser deities, or genii. Each of them have their peculiar charge; to these they pay considerable veneration, and make offerings

offerings to them, to divert their anger or ensure their protection. The Kamouli preside over the mountains, particularly the vulcanic; the Ouchakthou, over the woods; Mitg, over the sea; Gaetch, over the subterraneous world; and Fouila is the author of earthquakes. They believe that the world is eternal; that the soul is immortal; that in the world below it will be reunited to the body, and experience all the pains usual in its former state; but that it never will suffer hunger, but have every thing in great abundance: that the rich will become poor, and the poor rich; a fort of just dispensation, and balance of former good and evil\*. But almost all these superstitions are vanished by the attention of the Russians to their conversion. There are sew who have not embraced the Christian religion. Churches have been built, and schools erected, in which they are successfully taught the language of their conquerors, which has already almost worn out that of the native people.

The country was very populous at the arrival of the Russians; but, after a dreadful visitation of the small-pox, which in 1767 swept away twenty thousand souls; at present there are not above three thousand who pay tribute, the inhabitants of the Kuril isles included. Here are about four hundred of the military Russians and Cossacks, besides a number of Russian traders and emigrants perpetually pouring in, who intermix with the natives; in marriage, and probably in time will extinguish the aboriginal race. The offspring is a great improvement; for it is remarked, that the breed is far more active than the pure Russian or Cossack. Sunk in lordly indolence, they leave all the work to the Kamtschadales, or to their women; and suffer the penalty of their laziness, by the scurvy in its most frightful forms.

The Kamtschadales seem to retain the antient form of their dress; but during summer it is composed of foreign materials; in the warm season both sexes use nankeen, linen, and silk; in winter, the skins of animals well dressed: the dress of men and women resembles a carter's frock with long sleeves, surred at the wrists, the bottom, and about the neck. On their head is a hood of sur, sometimes of the shaggy skin of a dog, and often of

\* Hist. Kamtsch. 68, 71. + Voyage, iii. 366. ‡ Same, 367. Ff 2

NUMBERS OF PEOPLE.

DRESS.

the elegant skin of the EARLESS MARMOT. Trousers, boots, and furred mittens, compose the rest. The habit of ceremony of a Toion or chieftain is very magnificent, and will cost a hundred and twenty rubels: in antient times it was hung over with the tails of animals, and his furred hood flowed over each shoulder, with the respectability of a full-bottomed perriwig in the days of Charles II. The figure given in the History of Kamtschatka, translated into French, exhibits a great man in all his pride of dress, but so rapidly has the present race of natives copied the Russians, that possibly in so short a space as half a century, this habit, as well as numbers of other articles and customs, may be ranked among the antiquities of the country.

ARMS

Bows and arrows are now quite difused. Formerly they used bows made of larch-wood, covered with the bark of the birch. The arrows were headed with stone or bone, and their lances with the same materials. Their armour was either mats, or formed of thongs cut out of the skins of Seals, and sewed together, so as to make a pliable cuiras; which they sixed on their left side; a board defended their breast, and a high one on their back defended both that and the head.

HOSPITALITY.

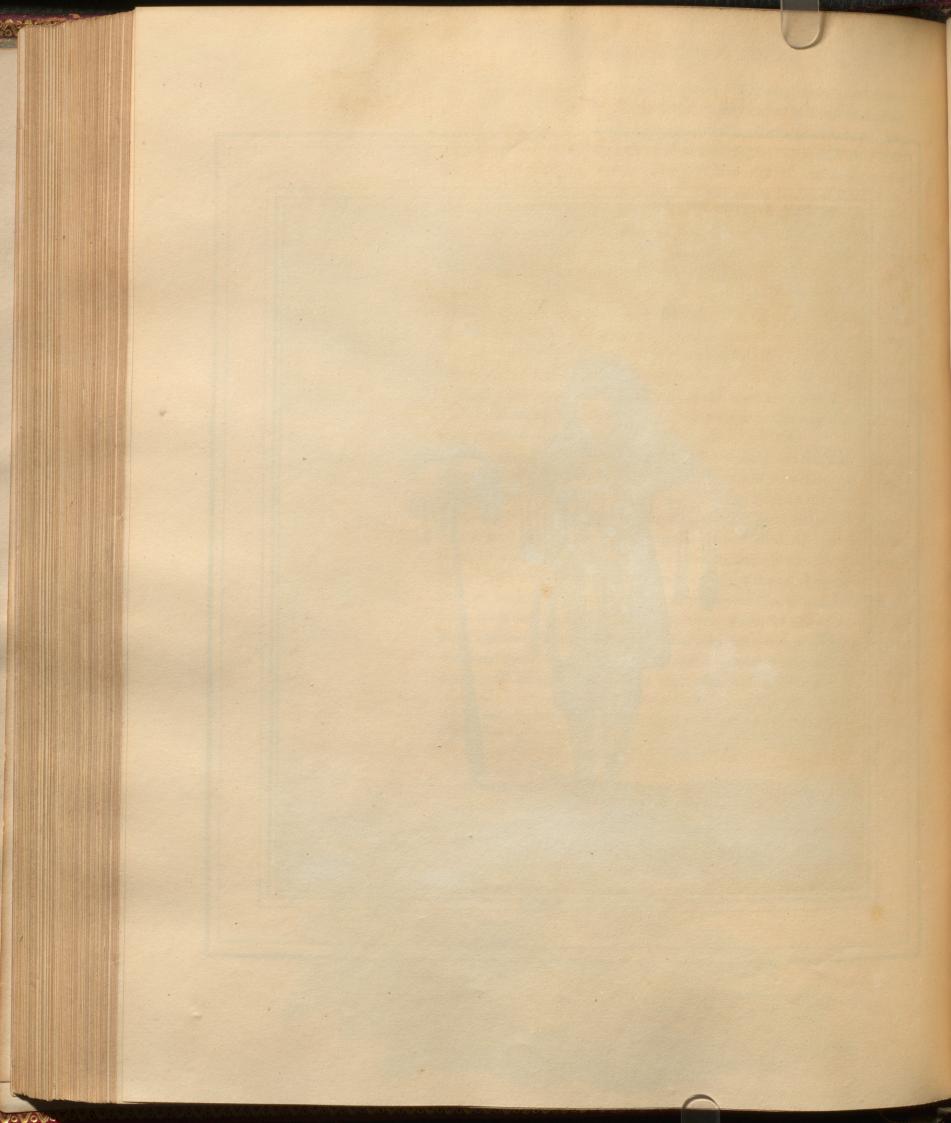
Their favage and beaftly hospitality is among the obsolete customs. Formerly, as a mark of respect to a guest, the host set before him as much sood as would serve ten people. Both were stripped naked: the host politely touched nothing, but compelled his friend to devour what was set before him, till he was quite gorged; and at the same time heated the place, by incessantly pouring water on hot stones, till it became unsupportable. When the guest was crammed up to the throat, the generous landlord, on his knees, stuffed into his mouth a great slice of whale's fat, cut off what hung out, and cried, in a surly tone, Tana, or There! by which he fully discharged his duty; and, between heat and cramming, obliged the poor guest to cry for mercy, and a release from the heat, and the danger of being choaked with the noble welcome: oftentimes he was

\* See Hist. Kamtschatka, tab, vic-It differs much from the habit of ceremony described by Captain King, iii. 377.

obliged







obliged to purchase his dismission with most costly presents; but was sure to retaliate on the first opportunity \*.

From the birds they learned the art of building their balagans or fummer-houses. They seem like nests of a conic form, perched on high poles instead of trees; with a hole on one side, like that of the magpie, for the entrance. Their journs, or winter residences, are copied from the OECONOMIC MOUSE; but with less art, and less cleanliness. It is partly sunk under ground; the sides and top supported by beams, and wattled, and the whole covered with turs. In this they live gregariously, to the number of six samilies in each; in a state intolerable to an European, by reason of smoke, heat, and stench, from their store of dried or putrid sish, and from their laziness, in never going out to perform their offerings to Cloacina †.

Instigated by avarice, the Russians made a conquest of this savage country; and found their account in it, from the great value of its furry productions. They have added to their dominions this extremity of Asia, distant at lest four thousand miles from their capital. The journey to it is still attended with great difficulties, through wild and barren regions, over dreadful mountains; and possibly impracticable, but for the multitude of Sibirian rivers, which, with short intervals of land, facilitate the passage. Travellers usually take their departure out of Sibiria from Jakutz, on the river Lena, in lat. 62: they go by water along the river, to its conflux with the Aldun, along the Aldun to the Mai, and from that river up the Judoma; and from near the head of that river to Ochotsk, the port from whence they embark, and cross the sea of Ochotsk to Bolschaia-reka, the port of the western side of Kamtschatka. The whole journey usually takes up the short summer: that over the hills to Ochotsk (and which is most convenient) was performed by STELLER in thirty-four days, excluding feven of rest 1.

The Kuril or Kurilski isles, which probably once lengthened the penin- Kuril Isles, fula of Kamtschatka, before they were convulsed from it, are a series of

DWELLINGS.

ROADS TO KAMTSCHATKA.

\* Hift. Kamtsch. 107 to 109. † Ellis's Nar. ii. 217. 1 Descr. Kamtsch. 602.

iflands

CCXVIII

VULCANIC.

islands running south from the low promontory Lopatka, in lat. 51; between which and Shoomska, the most northerly, is only the distance of one league. On the lofty Paramoufer, the second in the chain, is a highpeaked mountain, probably vulcanic \*: on the fourth, called Araumakutan, is another vulcano +; on Uruss is another; on Storgu two; and on Kunatir, or Kaunachir, one. These three make part of the group which pass under the name of the celebrated land of Feso ‡. Japan abounds with vulcanoes §; fo that there is a feries of spiracles from Kamtschatka to Japan, the last great link of this extensive chain. Time may have been, when the whole was a continuation of continent, rent asunder before the laboring earth gave vent to its inward struggles, through the mouths of the frequent vulcanoes. Even with these difcharges, Japan has fuffered confiderably by earthquakes |. Vulcanoes are local evils, but extensive benefits.

The Rushans foon annexed these islands to their conquests. The sea abounded with Sea Otters, and the land with Bears and Foxes; and some of them sheltered the Sable. Temptations sufficient for the Russians to invade these islands; but the rage after the furs of the Sea Otters has been fo great, that they are become extremely fcarce, both here and in Kamtschatka.

The islands which lie to the east of that peninsula, and form a chain between it and America, must now engage our attention. They lie in the form of a crescent, and are divided into three groupes; the Aleutian, the Andreanoffskie, and the Fox isles; but mention must first be made of BEHRING's isle, and that of Mednoi, and one or two small and of little note. These lie about two hundred and fifty versts to the east of the BEHRING's ISLE. mouth of Kamtschatka river. BEHRING's is in lat. 55, where that great seaman was shipwrecked in November 1741, on his return from his American discoveries; and, after enduring great hardships, perished miserably.

\* Foyage, iii. 388. † Decouvertes des Russes, i. 113. I These isles are marked in a Russan map, communicated to me by Doctor PALLAS, with MS. notes. § Kæmpfer, Hift. Japan. i. 305. || Same, 304.

Numbers

CCXIX

Numbers of his people died of the scurvy, with all the dreadful symptoms attendant on those who perished by the same disease in Lord Anson's voyage \*; the furvivors, among whom was the philosopher STELLER, reached Kamtschatka in August 1742, in a vessel constructed out of the wreck of their ship. The isle is about feventy or eighty versts long; consists of high granitical mountains, craggy with rocks and peaks, changing into free-stone towards the promontories. All the vallies run from north to fouth: hills of fand, formed by inundations of the fea, floated wood, and skeletons of marine animals, are found at great distances from the fhore, at thirty fathoms perpendicular height above the high-water level; which ferve as a monument of the violent inundations that the vulcanoes before mentioned produce in these seas. Farther, the effect of the meteoric waters, and of the frosts, causes the rocks very fensibly to shiver and fall down, and precipitates every year some great mass into the sea, and changes the form of the island. The others are in the same case; so nothing is more probable than their gradual diminution, and, by confequence, the more easy communication formerly from one continent to the other, before the injuries of time, the effects of vulcanoes, and other catastrophes, had insensibly diminished the size, and perhaps the number of these isles, which form the chain; and had eaten in the coasts of Asia, which every where exhibit traces of the ravages they have undergone t.

The island swarmed with Sea Otters, which disappeared in March. The Ursine Seal succeeded them in vast numbers, and quitted the coast the latter end of May. The Leonine Seal, the Lachtach or Great Seal, and the Manati, abounded, and proved the support of the wrecked during their stay. Arctic Foxes were seen in great multitudes, and completed the list of Quadrupeds. The same species of water-sowl haunt the rocks, and the same species of fish ascend the rivers, as do in Kamtschatka. The

\* Book i. ch. x. and Decouvertes, &c. ii. 293.

† I am indebted to Doctor Pallas for the whole account of this chain of islands, except where I make other references.—My extracts are made from a French Memoir, drawn up by my learned friend, and communicated to me.

tides



tides rise here seven or eight feet. The bottom of the sea is rocky, correspondent with the island.

STELLER found, on BEHRING's island, two hundred and eleven species of plants, of which more than a hundred grow in Sibiria, and other mountanous countries; many are common to the eastern side of Kamt-schatka and America. Brush-wood is only met with in the broadest part of the island. Near the northern part are some small alders with sharp-pointed leaves, and some wild roses. The betula nana grows in the marshes; and on the hills are some small junipers, the sorbus aucuparia or wicken tree, and a sew creeping willows.

The following, adding to those in the Flora of Kamtschatka, is the sum of those named in the account of Behring's island.

Mimulus luteus.

Fumaria.

Cornus herbacea, E.

Picris pedata.

Polypodium fragrans, E.

Andromeda polyfolia, E.

Campanula, Gm. Sib. iii. 160, 28. Senecio, Gm. Sib. ii. 136, N° 118.

Leontodon taraxacum, A. E. Virg. Arnica montana.

Hieracium murorum, β. E.

Chryfanthemum leucanthemum,

Tanacetum vulgare, E.

Virg.

MEDNOI.

Mednoi, or the copper is found at the foot of a ridge of calcareous mountains on the eastern side, and may be gathered on the shores in vast masses, which seems originally to have been melted by subterraneous fires. This island is full of hillocks, bearing all the appearance of vulcanic spiracles; which makes it probable, that these islands were rent from the continent by the violence of an earthquake. Among the sloat-wood off this island is camphor, and another sweet wood, driven by the currents from the isle of Japan.

ALEUTIAN ISLES.
THE NEAREST.

The Aleutian group lies in the bend of the crescent, nearly in midchannel between Asia and America, lat. 52. 30, and about two hundred versts distant from Mednoi. It consists of Attok, Schemija, and Semitchi.

The

The first seems to surpass in fize Behring's isle; but resembles it in its component parts, as do the other two. Attok feems to be the island which Behring called Mount St. John. These are inhabited by a people who speak a language different from the northern Asiatics; they seem emigrants or colonists from America, using a dialect of the neighboring continent. They were discovered in 1745, by Michael Nevadtskoff, a native of Tobolski, who made a voyage, at the expence of certain merchants, in fearch of furs, the great object of these navigations, and the leading cause of discoveries in this sea. This voyage was marked with horrid barbarities on the poor natives. The marine animals must have fwarmed about this period, and for some time after. Mention is made of adventurers who brought from hence to Kamtfchatka the skins of 5030 old and young Sea Otters. Another, on a small adjacent isle, killed 700 old, and 120 cub Sea Otters, 1,900 blue Foxes, 5,700 black Urfine Seals, and 1,310 of their cubs \*. The blue Foxes abound in these islands, brought here on floating ice, and multiply greatly. The blue variety is ten times more numerous here than the white; but the reverse is observed in Sibiria. They feed on fish, or any carrion left by the tide. The natives bore their under lips, and infert in them teeth cut out of the bones of the Walrus; and they use boats covered with the skins of fea animals.

At a great distance from the first group is the second, or farthest Aleu- ALEUTIAN ISLES. tian isles: of those we know no more than that the natives resemble those of the first. By the vast space of sea which Doctor Pallas allows between the two groups, Captain Cook is fully vindicated for omitting, in his chart, the multitude of islands which, in the Russian maps, form almost a complete chain from BEHRING's isle to America. Dr. PALLAS's information must have been of the best kind; and he and our illustrious navigator coincide in opinion, that they have been needlefsly multiplied, by the mistake of the Russian adventurers in the reckoning, or, on seeing the same island in different points of view, putting it down as a new dif-

\* Coxe's Ruff. Difc. 4to. 42. 57. 8vo. 46. 63.

Gg

covery,

## ANDREAN AND FOX ISLES. CALIFORNIA.

Fox ISLES.

ANDREAN ISLES. covery, and imposing on it a new name. The Andreanoffskie, so called from their discoverer (in 1761) Andrean Tolstyk, succeed. On two of them are vulcanoes. Laftly, are the Fox islands, fo called from the number of black, grey, and red Foxes found on them; the skins of which are so coarse, as to be of little value. The natives bore their noses and under lips, and infert bones in them by way of ornament. Among the last in this group is Oonolascha, which was visited by Captain Cook. This lies so near to the coast of America, as to clame a right to be confidered as an appurtenance to it. I shall therefore quit these detached paths for the prefent, and, in pursuance of my plan, trace the coasts of the northern division of the great continent, from the place at which it is divided from South America.

CALIFORNIA.

After traversing obliquely the Pacific Ocean, appears California, the most foutherly part of my plan on this side of the new world. This greatest of peninsulas extends from Cape Blanco, lat. 32, to Cape St. Lucas, lat. 23; and is bounded on the east by a great gulph called the Vermillion fea, receiving at its bottom the vast and violent river Colerado. The west fide is mountanous, fandy, and barren \*, with several vulcanoes on the main land and the isles +: the eastern, varied with extensive plains, fine vallies watered with numbers of streams, and the country abounds with trees and variety of fruits. The natives, the most innocent of people, are in a state of paradisaical nature, or at lest were so before the arrival of the European colonists among them. The men went nearly naked, without the consciousness of being so. The head is the only part they pay any attention to; and that is furrounded with a chaplet of net-work, ornamented with feathers, fruits, or mother of pearl. The women have a neat matted apron falling to their knees: they fling over their shoulders the skin of some beast, or of some large bird, and wear a head-dress like the other fex. The weapons of the country are bows, arrows, jave. lins, and bearded darts, calculated either for war or the chace. In the

<sup>+</sup> Hackluyt, iii. 401.-Hift. California, i. 140. \* Shelwoke, in Harris's Coll. i. 233.

bodies of trees bound parallel together; and in these they dare the turbulent element. They have no houses. During summer they shelter themselves from the sun under the shade of trees; and during nights sleep under a roof of branches spread over them. In winter they burrow under ground, and lodge as simply as the beasts themselves: such however was their condition in 1697; I have not been able to learn the effect of European resinement on their manners. Numbers of settlements have, since that time, been formed there, under the auspices of the Jesuits. The Order was of late years supported by the Marquis de Valero, a patriotic and munissicent nobleman\*, who savored their attempts, in order to extend the power and wealth of the Spanish dominions; and I believe with success. The land and climate, particularly Monterey, in lat. 36, is adapted for every vegetable production; and a good wine is made from the vines introduced by the colonists.

The natives are a fine race of men, tall, brawny, and well made; with black hair hanging over their shoulders, and with copper-colored skins. We have a most imperfect account of the animals of this peninsula. It certainly possesses two wool-bearing quadrupeds. As to birds, I doubt not but the Jesuits are right, when they say, that it has all that are sound in New Mexico and New Spain. The capes of Florida and cape St. Lucas

\* This is the nobleman whom the writer of Lord Anjon's Voyage stigmatifes with the epithet of munificent bigot. It was not by a reverend author, as is generally supposed, but by a person whose principles were unhappily in the extreme of another tincture.—Having from my youth been honored with the friendship of the Anson family, I can give a little history of the compilation of the Voyage: - A Mr. Paman first undertook the work. It was afterwards taken out of his hands, and placed in those of the reverend Mr. Walters, chaplain of the Centurion; but he had no share in it farther than collecting the materials from the several journals: those were delivered to Mr. Benjamin Robins, a most able mathematician, and the most elegant writer of his time. He was son of a quaker-taylor at Bath, whom I have often seen: a most venerable and respectable old man. Mr. Robins unfortunately forgot that he was writing in the character of a divine; and it was not thought proper to affront Mr. Walters, by omitting his name in the title-page, as he had taken in subscriptions: this, therefore, will account for the constant omission of the word PROVIDENCE, in a voyage which abounded with fuch fignal deliverances. lie Gg 2

NATIVES.

lie nearly under the fame latitudes, and form the fouthern extremities of North America; but our ignorance of the productions of the vast provinces of New Mexico, will leave ample subject to a suture naturalist to supply my deficiencies.

This country was discovered under the auspices of the great Cortez, and Don Antonio de Mendoça, cotemporary viceroy of the new conquests: each, actuated by a glorious spirit of emulation, sent out commanders to advance the welfare of their country to the utmost; and Francisco Ulloa, in 1539, and Fernando Alarebon, in 1540, soon discovered this peninfula, and other adjacent regions, sources of immense wealth to their country\*. The Spanish adventurers of these early times sailed as high as lat. 42; and named, in honor of the viceroy, the farthest point of their discovery, Cabo di Mendoça.

SIR FRANCIS DRAKE. Our celebrated navigator, Sir Francis Drake, on June 5th 1578, touched on this coast, first in lat. 43; but was induced, from the severity of the cold, to sail to lat. 38, where he anchored in a sine bay. He sound the natives to be a fine race of men, naked as the Californians, with the same kind of head-dresses; and the semales habited like their southern neighbors. He was treated like a deity. The chief of the country, by the resignation of his crown or chaplet, his sceptre, i. e. calumet, and other insignia of royalty, vested in Sir Francis the whole land; which he named New Albion, from its white cliss, and took formal possession of in the name of his royal mistress. We may be thankful that we never clamed the cession: it forms at present part of New Mexico; and probably is reserved for suture contests between the Spaniards and the offspring of our late colonists. Sir Francis sound this country a warren of what he calls 'a strange kind of Conies, with heads as the heads of ours; the seete of a Want, i.e. a

' Mole, and the tail of a Rat, being of a great length: under her chinne

' is on either fide a bag, into the which she gathereth her meat when she

hath filled her bellie abroad.' The common people feed on them, and the king's coat was made of their skins †. This species is to be referred to

<sup>\*</sup> A full account of these voyages may be seen in Hackluyt, iii. 397, &c.

<sup>†</sup> Hackluyt, iii. 738.

the division of Rats with pouches in each jaw; and has never been observed from that period to this.

Exactly two hundred years from that time the coast was again visited CAPTAIN COOK. by an Englishman, who in point of abilities, spirit, and perseverance, may be compared with the greatest seamen our island ever produced. Captain JAMES COOK, on March 7th 1778, got fight of New Albion, in lat. 44. 33 north, and long. 235. 20 east, about eight leagues distant. The sea is here (as is the case the whole way from California) from seventy-three to ninety fathoms deep. The land is moderately high, diversified with hills and vallies, and every where covered with wood, even to the water's edge. To the most fouthern cape he faw he gave the name of Cape Gregory, its latitude 43. 30: the next, which was in 44. 6, he called Cape Perpetua; and the first land he saw, which was in 44. 55, Cape Foul-weather. The whole coast, for a great extent, is nearly similar, almost strait, and harborless, with a white beach forming the shore. While he was plying off the coaft, he had a fight of land in about lat. 43. 10, nearly in the fituation of Cape Blanco de St. Sebastian, discovered by Martin d'Aguilar in 1603. A little to the north, the Oregon, or great river of the West, difcharges itself into the Pacific Ocean. Its banks were covered with trees; but the violence of the currents prevented D'Aguilar from entering into it \*. This, and the river of Bourbon, or Port Nelson, which falls into Hudson's Bay; that of St. Laurence, which runs to the east; and the Missippi, which falls into the bay of Mexico, are said to rise within thirty miles of each other. The intervening space must be the highest ground in North America, forming an inclined plane to the discharges of the several rivers. An ill fated traveller, of great merit, places the spot in lat. 47, west long. from London 98, between a lake from which the Oregon flows, and another called White Bear lake, from which the Miffifipit.

\* Hift. California, ii. 292.

<sup>+</sup> Carver's Travels, 76, 121. Mr. Carver, captain of an independent company, penetrated far inland into America; and published an interesting account of his travels. This gentleman was suffered to perish for want, in London, the seat of literature and opulence!!!

OCXXVI

CHAIN OF ALPS

This exalted situation is part of the Shining Mountains, which are branches of the vast chain which pervades the whole continent of America. It may be fairly taken from the fouthern extremity, where Staten Land and Terra del Fuego rife out of the sea, as insulated links, to an immense height, black, rocky, and marked with rugged spiry tops, frequently covered with fnow. New Georgia may be added, as another, horribly congenial, rifing detached farther to the east. The mountains about the streights of Magellan foar to an amazing height, and infinitely superior to those of the northern hemisphere, under the same degree of latitude. From the north side of the streights of Magellan, they form a continued chain through the kingdoms of Chili and Peru, preserving a course not remote from the Pacific Ocean. The fummits, in many places, are the highest in the world. There are not less than twelve which are from two thousand four hundred toises high, to above three thousand. Pichincha, which impends over Quito, is about thirty-five leagues from the sea, and its summit is two thousand four hundred and thirty toises above the surface of the water; Cayambé, immediately under the equator, is above three thousand; and Chimborazo higher than the last by two hundred. Most of them have been vulcanic, and in different ages marked with eruptions far more horrible than have been known in other quarters of the globe. They extend from the equator, through Chili; in which kingdom is a range of vulcanoes, from lat. 26 fouth, to 45. 30\*, and possibly from thence into Terra del Fuego itself, which, forming the streights of Magellan, may have been rent from the continent by some great convulsion, occasioned by their laborings; and New Georgia forced up from the same cause. An unparalleled extent of plain appears on their eastern side. The river of Amazons runs along a level cloathed with forests, after it bursts from its confinement at the Pongo of Borjas, till it reaches its fea-like discharge into the Atlantic Ocean.

In the northern hemisphere, the Andes pass through the narrow ishmus of Darien, into the kingdom of Mexico, and preserve a majestic height and

\* Ovalle, Hift. Chili, in Churchill's Coll. iii. 13.

their

their vulcanic disposition. The mountain Popocatepec made a violent eruption during the expedition of Cortez, which is most beautifully defcribed by his historian, Antonio de Solis\*. This, possibly, is the same with the vulcano observed by the Abbé d'Auteroche, in his way from Vera Cruz to Mexico, which, from the nakedness of the lavas, he conjectured to have been but lately extinguished †. From the kingdom of Mexico, this chain is continued northward, and to the east of California; then verges so greatly towards the west, as to leave a very inconsiderable space between it and the Pacific Ocean; and frequently detached branches jut into the fea, and form promontories; which, with parts of the chain itself, were often feen by our navigators in the course of their voyage. Some branches, as we have before observed, extend towards the east, but not to any great distance. A plain, rich in woods and favannas, fwarming with Bisons or Buffaloes, Stags, and Virginian Deer, with Bears, and great variety of game, occupies an amazing tract, from the great lakes of Canada, as low as the gulph of Mexico; and eastward to the other great chain of mountains, the Apalachian, which are the Alps of that side of northern America. I imagine its commencement to be about lake Champlain and lake George, with branches pointing obliquely to the river St. Laurence eastward, and rising on its opposite coasts: others extending, with lowering progress, even into our poor remnant of the new world, Nova Scotia. The main chain passes through the province of New York, where the lower or eastermost scattered ridge is distinguished by the name of the Highlands, and lies within forty miles of the Atlantic. From thence it recedes from the sea, in proportion as it advances fouthward; and near its extremity in South Carolina is three hundred miles diftant from the water. It confifts of feveral parallel ridges t, divided by most enchanting vallies, and generally cloathed with variety of woods. These ridges rise gradually from the east, one above the other, to the central; from which they gradually fall to the west, into

<sup>\*</sup> Conquest of Mexico, book iii. ch. iv. + Voy. to California, 33.

† Doctor Garden. See also Mr. Lewis Evans's Essays and map. Philadelphia, 2d. ed. p. 6, &c.

## CHAIN OF ALPS IN AMERICA.

the vast plains of the Missipi. The middle ridge is of an enormous bulk and height. The whole extends in breadth about feventy miles; and in many places leaves great chasms for the discharge of the vast and numerous rivers which rife in the bosoms of the mountains, and empty themselves into the Atlantic ocean, after yielding a matchless navigation to the provinces they water. In p. clviii. I have given a view of the immense elevated plain in the Russian empire. Beyond the branch of the Apalachian mountains, called The Endless, is another of amazing extent, nearly as high as the mountains themselves\*. This plain, (called the Upper Plains) is exceedingly rich land; begins at the Mohock's river; reaches to within a small distance of lake Ontario; and to the westward forms part of the extensive plains of the Obio, and reaches to an unknown distance beyond the Miss. fipi. Vast rivers take their rife, and fall to every point of the compass; into lake Ontario, into Hadson's river, and into the Delawar and Susquebannah. The tide of the Hudson's river flows through its deep-worn bed far up, even to within a small distance of the head of the Delawar; which, after a furious course down a long descent, interrupted with rapids, meets the tide not very remote from its discharge into the ocean t.

LOW GROUNDS.

Much of the low grounds between the base of the Apalachian hills and the sea (especially in Virginia and Carolina) have in early times been occupied by the ocean. In many parts there are numbers of small risings composed of shells, and in all the plains incredible quantities beneath the surface. Near the Missispi again, in lat. 32. 28, from the depth of sifty to eighty feet, are always found, in digging, sea-sand and sea-shells, exactly similar to what are met with on the shores near Pensacola. This is covered with a stratum of deep clay or marle, and above that with a bed of rich vegetable earth. All this proves the propriety of applying the epithet of New to this quarter of the globe, in a sense different to that intended by the novelty of its discovery. Great part of North America at lest became but recently habitable: the vast plains of the Mississip, and the tract between the Apalachian Alps and the Atlantic, were once possessed

<sup>.</sup> Mr. Lewis Evans, p. 9, and map.

the ocean. Either at this period America had not received its population from the old world, or its inhabitants must have been confined to the mountains and their vallies, till the waters ceased to cover the tracts now peopled by millions.

The composition of the northern mountains agrees much with those of the north of Asia, and often consists of a grey rock-stone or granite, mixed with glimmer and quartz; the first usually black, the last purplish. Near the river St. Laurence, a great part of the mountains rests on a kind of flaty limestone. Large beds of limestones, of different colors, are seen running from the granitical mountains, and are filled with Cornua Ammonis, and different forts of shells, particularly with a small species of scallop, together with various forts of corals, branched as well as starry. The strata of limestone also appear near the base of different parts of the Apalachian chain \*. Without doubt, the schistous band, consisting of variety of stone, split and divided by fiffures horizontal and perpendicular (in Afia the repository of metallic veins) is also found attendant on the granitical mountains of North America, and like them will be found rich in ores †. The labor will be amply repaid to the proprietors, by the discovery of mineral sources of wealth, perhaps equal to those already discovered in the similar secondary chains of mountains in the Russian empire 1.

NORTH AMERICA is subject to earthquakes, but never to the destructive EARTHQUAKES. degree that South America is. The only observations which could have been made were on the eastern part. Canada and New England have experienced feveral shocks, some very violent, so as to throw down walls and chimnies, dry up fprings and fmall rivers; infect others with fulphureous and most fetid fmells. In some places sulphureous blasts burst out of the ground, and flung up calcined bituminous earth, or loads of fine fand and ashes, mixed with a remnant of sulphur. The same singular

COMPONENT PARTS.

rumbling

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<sup>\*</sup> Kalm, iii. 21, 198, 216 .- Bartram's Travels, 10, 38.

<sup>+</sup> In such seem to be lodged the lead and silver ores found in Canada. See Kalm, iii. 212.

I See Dr. PALLAS'S Obs. sur la formation de Montagnes, &c.

rumbling noise preceded each earthquake as in Europe; and ships, at a great distance from shore, selt shocks as if they had struck upon a rock. The most terrible earthquake on record in these parts was that of 1663. Its greatest violence was in Canada. Many mountains were broken and rent; and, between Tadoussac and Quebec, two mountains were slung so as to form a point of land, jutting a quarter of a league into the river of St. Laurence.

These parts of North America have their vulcanoes. On the West River mountain, in the province of New Hampshire, are cinders, calcined matter, and burnt sand. Noises have been heard at the distances of sourteen or sisteen miles; and, about thirty-sive years ago, the noise was uncommonly loud; and at that time the sire was seen very distant. These accounts of the vulcanoes are but imperfectly related, but I little doubt but that they are well sounded. As to the explosions, which so often rend the rocks in North America, they are of different nature, and caused by the expansive power of the frosts \*.

CLIMATE OF North AMERICA. The thermometer has been known, in Hudson's-bay, to rise out of doors to 85, on the 12th of July, and to sink in the month of January to 45 below the cypher, in a glass regulated according to Farenbeit's scale. It has been observed by Mr. Hutchins, that on the 6th of July, 1775, the quicksilver rose as high as 99; and once in the same month, for an hour or two, even to 103. In respect to cold, the quicksilver begins to congeal when it is sunk to about 40 below the cypher; but the spirit thermometer continues to shew a degree of cold so low as 46. The former remarks were made by Mr. Wales, at Prince of Wales's fort, in lat. 58° 55', correspondent to the southern part of the Orknies. Those islands lie surrounded by the sea: Hudson's-bay has to the west a tract of continent extending in the narrowest part above thirty-sive degrees, covered the whole winter with snow; and to the north a still more rigorous climate, a sea

perpetually

<sup>\*</sup> See Professor Williams's account of the Earthquakes in North America, and Mr. Alexander's account of the Vulcanoes, in the Memoirs of the American Academy, vol. i. pp. 260, 316.

perpetually infested with ice: so let the wind blow either from the west or from the north, it is sure to bring with it the most severe effects. From the province of New York to this in question, the ground remains covered with snow the greatest part of the winter; later or earlier, as the country approaches or recedes from the south. The predominant winds are from the west, and those blow above three quarters of the year: but the north or north-easterly winds are observed to be the vehicles of snow. The north-westerly bring the severest cold.

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The middle provinces are remarkable for the unsteadiness of the weather, or the quick transitions from heat to cold. Snow falls in quantities in Virginia, but does not lie above a day or two; yet even after a mild, or indeed a warm day, the river Potowmoc has been frozen over in one night, strong enough to be passed, and that in places where it was two miles broad; and James river, where it has been three miles broad. These alterations are owing to the above-cited cause, the sudden arrival of the chilling winds of the north-west.

The provinces of South Carolina and Florida are subject to vast heats and surious whirlwinds, hurricanes, bursts of thunder, and satal lightnings. Mr. Henry Ellis sound the thermometer in Georgia at 105, in one of the summer months: a heat so far superior to that of the human body, even in that climate, that Mr. Ellis could not raise it above 97 by the application of it to his body. On December 10th it was at 86, yet the next day sell as low as 38. Well might Mr. Ellis remark the deleterious effect of these extraordinary changes on the human frame \*.

The united fury of the thunder, lightning, and whirlwind, cannot be better illustrated than by the descriptive instance which happened in South Carolina, with which Dr. GARDEN, with his usual liberality, favored me; and of which he was an eye-witness.

Before I fay any thing of that tremendous whirlwind which I mentioned to you in conversation, the particulars of which you desire, I shall observe that Carolina, in common with other warm climates, is subject to

\* Phil. Tranf. 1. 754, 755.

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· occasional

## STORMS IN CAROLINA.

occasional tempests of various forts; such as severe thunder storms, hurricanes, whirlwinds, &c. of different strength and violence. Thunder forms and gusts happen at all times of the year, particularly in the summer time; but there are some, of the most dreadful force and appearance, that happen chiefly in the spring and autumnal months. They generally rife between the west and north, and gradually advance, with accumulating thickness, always in a contrary direction to the wind, which ftrengthens as the gust approaches, and rises in the atmosphere with deep and fullen darkness, pregnant with frequent bursts of sharp lightning, darting its tremendous forks in all directions. Every kind of animal feeks shelter and retreat. The wind increasing, and the clouds rolling on from contrary quarters, the opposing elements, by their furious approach and violent contention, produce a general uproar and darkness: and the atmosphere is hurried into eddies and whirlwinds, that fill the ' air with dust, leaves, and branches of trees, and every other light body that lies in their way; fo that an almost total darkness takes place, before the important cloud, rolling on, at length bursts over you, and pours down fpouts and torrents of rain, mingled with almost unintermitting ' peals of thunder, and the most alarming flashes of lightning, pointed and forked, which frequently strikes houses, and shivers in pieces the lostiest ' and stoutest trees. During the storm, heaven and earth seem to be in ' contention; and yet no fooner is its force spent, than all is funshine, calmness, and tranquillity.—These gusts generally happen in the after-' noon and towards evening, though I have feen them at all times of the '24 hours.—But, entirely independent of fuch storms, whirlwinds of different forts arise in various parts of the country; and taking sometimes ' a rectilinear, and fometimes an irregular and varied direction, proceed ' through the country, marking their progress (if of great strength and ' violence) by an avenue in the woods, of a greater or less extent according to their diameter, where every tree, plant, building, &c. are torn up, broken, and laid flat; till at length the whirling column either fuddenly Iifts itself up, and vanishes in the air; or gradually diminishing in force, bulk, and diameter, totally disappears. Small whirlwinds of this kind \* are frequent in the hottest weather: those of large size and great force fortunately happen seldomer; but their tracks are now and then seen in the woods, and may be followed for miles.

Of this kind, commonly known under the title of TYPHONS, a most violent one passed down Ashley River, on the 4th of May 1761, and sell upon the shipping in Rebellion Road with such sury, as to threaten the immediate destruction of a large sleet lying there ready to sail for Europe.

\* mediate destruction of a large fleet lying there ready to fail for Europe. 'This terrible phænomenon was feen by many of the inhabitants of · Charlestown, coming down Wappoo Creek, resembling a large column of s fmoke and vapor, whose motion was very irregular and tumultuous, as " well as that of the neighboring clouds, which appeared to be driven down nearly in the fame direction (from the fouth-west), and with great velocity. The quantity of vapor which composed this impetuous column, \* and its prodigious velocity, gave it such a surprising momentum, as to s plow Ashley River to the bottom, and to lay the channel bare, of which ' many persons were eye-witnesses. When it came down Ashley River it " made so great a noise, as to be heard by most of the people in town, and \* was taken by many for conftant thunder; its diameter at that time was ' generally judged to be about three hundred fathoms (though from what I have fince known of the breadth of the river, I am confident it must " have been nearer double); and in height, to a person in Broad-street, · Charlestown, it appeared to be about forty-five degrees, though it increased in magnitude and height during its progress to Rebellion Road. As it ' passed the town, nearly about the conflux of Cooper and Ashley rivers, it was joined by a column of the same kind, though not of the same magnitude, which came down Cooper River. Though this last was not of equal ftrength or impetuolity with the other, yet on their meeting together, the ' tumultuous and whirling agitations of the air were feemingly much greater; insomuch that the froth and vapor raised by its sides in the river, seemed to be thrown up to the apparent height of thirty-five or forty degrees s towards the middle; whilft the clouds, which were now driving in all directions to this place, appeared to be precipitated into the vortex, and whirled around at the same time with incredible velocity: just after this, it fell on the shipping in the Road, and was scarce three minutes in its pas-

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· fage,

## REALITY OF DE FUCA'S

fage, though the distance is near two leagues. Five vessels were sunk out-

right; his majesty's ship the Dolphin, which happened to be at anchor just

on the edge of the column, and all others in that fituation, lost their masts;

the other unfortunate five, which lay in the direct line of its progress, were

inftantaneously funk. Whether was this done by the immense weight of

this column pressing them into the deep? or was it done by the water be-

" ing fuddenly forced from under them, and thereby letting them fink for

· low, as to be immediately covered and ingulphed by the lateral mass of

water? This tremendous column was feen upwards of thirty miles fouth-

west from Charlestown, where it arrived twenty-five minutes after two

o'clock, P. M. making an avenue in its course of great width, tearing up

\* trees, houses, and every thing that opposed; great quantities of leaves,

branches of trees, even large limbs, were feen furiously driven about and

agitated in the body of the column as it passed along. When it passed

Rebellion Road, it went on the ocean, which it overspread with trees,

" branches, &c. for many miles, as veffels arriving from the northward some

days afterwards informed us. The sky was overcast and cloudy all the

6 forenoon; about one o'clock it began to thunder, and continued more or

e less till three. The mercury in Farenheit's thermometer, at two o'clock,

flood at 77°; by four o'clock the wind was quite fallen, the fun shone

out, and the fky was clear and ferene, and not a vestige of the dreadful

" fcene remaining, but the difmasted and dismantled vessels in the Road."

I will now return from this digression to the Oregon. I am sorry to find that our illustrious voyager treats the existence of the streight, into which that river falls, with a fastidiousness very uncommon with his usual candor and modesty. He even denies the river a place in his map. Captain Cook came, on March 22d 1778, off a point of land which, with an island and some other circumstances, afforded such hopes of having sound an entrance, that he gave to that point the name of Caper Flattery. Hard gales, and even a short storm, blew him from this part of the coast; yet it is now evident, that very cape was the southern horn of the mouth of the river Oregon, or of what is now indisputably known to be the long-scouted streights of De Fuca. De Fuca was a very able pilot, employed by the viceroy of Mexico on voyages of difcovery,

covery, in the reign of Philip II. In 1592 he was fent, in pursuance of a former plan, for the discovery of the streights of Anian. He found an opening or great inlet between lat. 47 and 48. He sailed up till he met with an open sea, which he navigated to a considerable distance. He returned; and, on some discontent with the Spaniards, quitted their service, and went to Venice, on his way home, being a Greek by birth. At Venice he met with a Mr. Lock, either a British, or a considerable merchant: to him he expressed a wish to engage with the English, and conduct them to his discovery of a north-west passage into the South Sea. Lock wrote to Sir Walter Raleigh, and to Richard Hackluyt \*: but the offer was neglected; and De Fuca soon after died, in his passage to his native country.

If it had not been for the last voyage of Captain Cook, the discovery by De Fuca had either been forgotten, or his memory stigmatized as that of an impostor. The report of the vast prices which the few skins of the sea otters took at Canton, on the return of the Resolution and Enterprize, stimulated several merchants to fit out vessels for that trade alone. The first were from Macao: the second from Bombay. One Hannas was the first adventurer; who failed from the Typa in April 1785, and reached Nootka in the August following. Lieutenant Meares, of the royal navy, failed from Bengal in 1786. The national infult we, fuffered from the Spaniards, in the person of this gentleman, is unknown to none: I shall only mention Mr. Meares in the character of a brave and spirited discoverer. In June 1788 he entered and explored these famous streights. He found them in lat. 48. 5. The land dreary, but often covered with immense forests, and the sea abounding with the valuable animal, the fea otter: the men fierce in their aspect, and most undoubted anthropophagi. The hard gales, and furrounding dangers, determined him to quit the streights, and feek the open sea. He soon after met with an American floop, the Washington, and informed the master of the discovery: which he purfued, entered the famous passage, and found an extensive

\* Purchas, iii.

\* Hh 3

fear.

- fea, with numerous and populous ifles, feated on the back of Nootka and other islands hitherto supposed to have been part of the great continent. The great river Oregon is placed in the charts as entering into the western side of this inland sea. The Washington sailed from south to north above nine degrees, and came again into the ocean through another found or streight, nearly in lat. 55, to the fouth of the place named by Mr. Arrowsmith, Sea Otter Sound. The whole group is named by Mr. Meares, Princess Royal Islands: no part of which, excepting Nootka, was ever touched at before. We must wait patiently for the great consequences of this discovery: it probably may approximate to the territories of the Hudfon's Bay company; and give, by means of lakes and rivers, a communication with the bay, and by their medium, and those of carrying-places, unite the Atlantic and Pacific oceans. I cannot suppose these are actual streights: the shores of the bay have been thoroughly investigated, and if they had not, Mr. Hearne's journey has put the matter beyond the power of doubt. The place that should be fearched should be Baffin's Bay: but should we fucceed in meeting with a pervious inlet, the dangers of the floating ice, and the shortness of the favorable season, will, I fear, effectually destroy the utility of fuch a paffage.

The next discoverers of the parts so unfortunately missed by Captain Cook, were Captain George Dixon, Mr. Strange, Captain Douglas, and Captain Duncan. The first had the honor of discovering the two great islands now called Queen Charlotte's Islands; Mr. Meares attributes the merit to the captains Lourie and Guire, under Mr. Strange, in the year 1786. I will not enter into the dispute between two gentlemen I have the pleasure of knowing; let the proportion of same be settled by an impartial public. I mention the effects of discovery only in the state in which I find it.

I shall now inform the public of the great discovery of what it has for a long time held equally sabulous with that of De Fuca. De Fonta's inlet is no longer doubted; yet the entrance, perhaps, not perfectly ascertained. He probably passed between the two Charlotte islands, through Trollope river, into Dixon Streight; from that streight he passed through

the Princess Royal Island, and then arrived in that great gulph or inland fea discovered by the Washington, of which we may expect more perfect accounts, leading to the most important consequences. We have in Mr. Meares's voyage (Introd. LXII.) a hint of a discovery through the inland sea, into the vicinity of Hudson's Bay. A little time will either disprove this communication, or reduce it to a certainty: we will therefore, in the present doubtful state, conclude, that we may pronounce the Trollope river to have been De Fonta's inlet, and the Charlotte and the Princess Royal Islands, his Archipelago of St. Lazarus\*.

In lat. 49, Captain Cook found a fecure shelter in an harbour called by NOOTKA SOUND, him King George's Sound; by the natives, Nootka. The shores are rocky †; but within the Sound appears a branch of the range I before mentioned. It is here divided into hills of unequal heights, very steep, with ridged sides, and round blunted tops; in general cloathed with woods to the very summits. In the sew exceptions, the nakedness discovers their composition, which is rocky, or in parts covered with the adventitious soil of rotten trees or mosses.

The trees were the Pinus Canadensis, or Canada Pine; the P. Sylvestris, or Scotch Pine, and two or three other forts; Cupressus Thyoides, or the White Cedar. The Pines of this neighborhood are of a great size: some are a hundred and twenty seet high, and sit for masts or ship-building t; but the dimensions of some of the canoes in Nootka Sound best shew their vast bulk—they are made of a single tree, hollowed so as to contain twenty persons, and are seven feet broad, and three deep. They are the same with the monoxyla of the antient Germans and Gauls S, but constructed with much more elegance. The old Europeans were content if they could but float. They probably were formed on the same rude model as those of the

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old

<sup>\*</sup> Those who wish for fuller information may consult Mr. Meares's Voyage, on the probability of a north-west passage, deduced from the observations on the letter of Adm. De Fonta, published by Tho. Jefferys, 1768.

<sup>+</sup> Voyage, ii. 290. tab. 86, 87. ‡ Barrington's Miscell. 290.

<sup>§</sup> Polyan, Stratagen, lib. v. c. 23.—Vel. Paterc. lib. ii. c. 107.

old Virginians\*, or of the antient Britons, similar to one I have seen dug up in a morass in Scotland, as artless as a hog-trough †. Those of Nootka Sound are at the head tapered into a long prow, and at the stern they decrease in breadth, but end abrupt.

The day-tides rise here, two or three days after the full and new moon, eight feet nine inches. The night-tides, at the same periods, rise two feet higher. Pieces of drist wood, which the navigators had placed during day out of the reach (as they thought) of the tides, were in the night floated higher up, so as to demonstrate the great increase of the nocturnal flux ‡.

I have described, to the best of my power, the quadrupeds and birds of the American part of this voyage. In the Zoological part I have given my suspicions of certain animals of the Sheep kind being natives of this neighborhood and California; but am not sufficiently warranted to pronounce them to be the same with the Argali or wild Sheep. Woollen garments are very common among the people of this Sound, and are manufactured by the women. The materials of many of them seem taken from the Fox and the Lynx; others, I presume, from the exquisite down of the Musk Ox. The only peculiar animal of these parts is the Sea Otter: it extends southward along the coast, as far as lat. 49, and as high as 60. The other quadrupeds observed by the navigators are common to the eastern side of North America.

I may mention, that small Perroquets, and Parrots with red bills, seet, and breasts, were seen by M. Maurelle about Port Trinidada, in lat 41.7; and great slocks of Pigeons in the same neighborhood §. This was in June: they might have been on their migration when our navigators reached the coasts, which was on March 29th. As to the Parrots, it is possible that those birds may not extend so far north as Nootka; for on the eastern

BLEDS.

<sup>\*</sup> Brevis et fida Narratio Virginiæ, in which are engraven the canoes of the country, taken from the drawings of John With; fent there with Tho. Harriot, by Sir Walter Raleigh, who communicated them to De Bry.—See tab. xii. and xlii. of the Account of Florida.

<sup>†</sup> Tour Scotl. ii. p. 106. † Voyage, ii. 339. § See Barrington's Miscell. 489, 502.

fide of the continent they do not inhabit higher, even in summer, than the province of Virginia, in lat. 39; or, in the midland parts, than lat. 41. 15, where they haunt in multitudes the southern sides of the lakes Erie and Michigam, and the banks of the rivers Illinois and Ohio. Another delicate species of bird was seen here in plenty, a kind of Honey-sucker or Humming-bird, a new species; which I have described under the title of the Ruffed. Among the water-sowl were seen the Great Black Petrel, or the Quebrantabuessos, or Bone-breaker of the Spaniards, which seems to be found from the Kuril isles to Terra del Fuego; the Northern Diver, a great flock of Black Ducks with white heads; a large species of White Ducks with red bills; and Swans slying northward to their breeding-places: common Corvorants were also very frequent.

The inhabitants of this Sound alter in their appearance from those who live more southern. They are in general below the middle stature; plump, but not muscular: their visage round, full, and with prominent cheeks; above which the face is compressed from temple to temple: the nostrils wide: nose stat, with a rounded point; through the septum narium of many is introduced a ring of iron, brass, or copper: eyes small, black, languishing: mouth round: lips large and thick: hair of the head thick, strong, black, long, and lank; that on the eye-brows very thin: neck short and thick: limbs small and ill-made: skin a pallid white, where it can be viewed free from dirt or paint. The women are nearly of the same form and size as the men, but undistinguishable by any seminine softness. Many of the old men have great beards, and even mustachios; but the younger people in general seem to have plucked out the hair, except a little on the end of the chin.

Their dress consists of mantles and cloaks, well manufactured among themselves, and either woollen, matting, or some material correspondent to hemp. Over their other cloaths the men frequently throw the skin of some wild beast, which serves as a great cloak. The head is covered with a cap made of matting, in form of a truncated cone, or in that of a slower-vase, with the top adorned with a pointed or round knob, or with a bunch of leathern tassels. Their whole bodies are incrusted with paint or dirt,

MEN.

and they are a most squallid offensive race; silent, and uncommonly lazy; eafily provoked to violent anger, and as foon appealed. The men are totally destitute of shame: the women behave with the utmost modesty, and even bashfulness\*. I should not repeat what has been faid of the infinite variety of hideous masques this nation possesses, and feems particularly fond of, was not the ingenious Editor of the Voyage at a loss for their intent, whether for religious or for masquerading purposes +. Mr. Bartram t proves that these masques extend to the eastern side of the continent, and that their use, in those parts, was sportive; for he was plagued one night with the buffoonery of a fellow, who came into his lodgings while he was on his travels, and, after playing a thousand antic tricks, vanished in a manner as if he meant to be taken for a hobgoblin.

The Ofliaks, to this day, in their dances put on masques, change their dresses frequently, and imitate the forms of beasts and birds, and often in a manner fo striking and satirical, that one is surprized to hear of so perfect a pantomime among fuch a favage people. But would not ignorance or superstition ascribe to a supernatural metamorphosis these temporary expedients to deceive the brute creation, or to afford amusement to their countrymen by these frolicsome masquerades? The Americans may carry themselves thus dressed into the field of battle, as the Apulian hunter did, who fell by the hand of Camilla. Dress and arms were fimilar;

> Caput ingens oris hiatus, Et malæ texere lupi, cum dentibus albis: Agrestisque manus armat sparus.

These people have made some progress in the imitative arts; for, besides their skill in the sculpture of their masques, which they cut into the shape of the heads of various species of beafts and birds, they are capable of painting with tolerable exactness: accordingly, they often represent on their caps the whole progress of the Whale-fishery. I have seen a small

\* Voyage, ii. 319. + Same, 307. 1 Travels, 43.

bow.

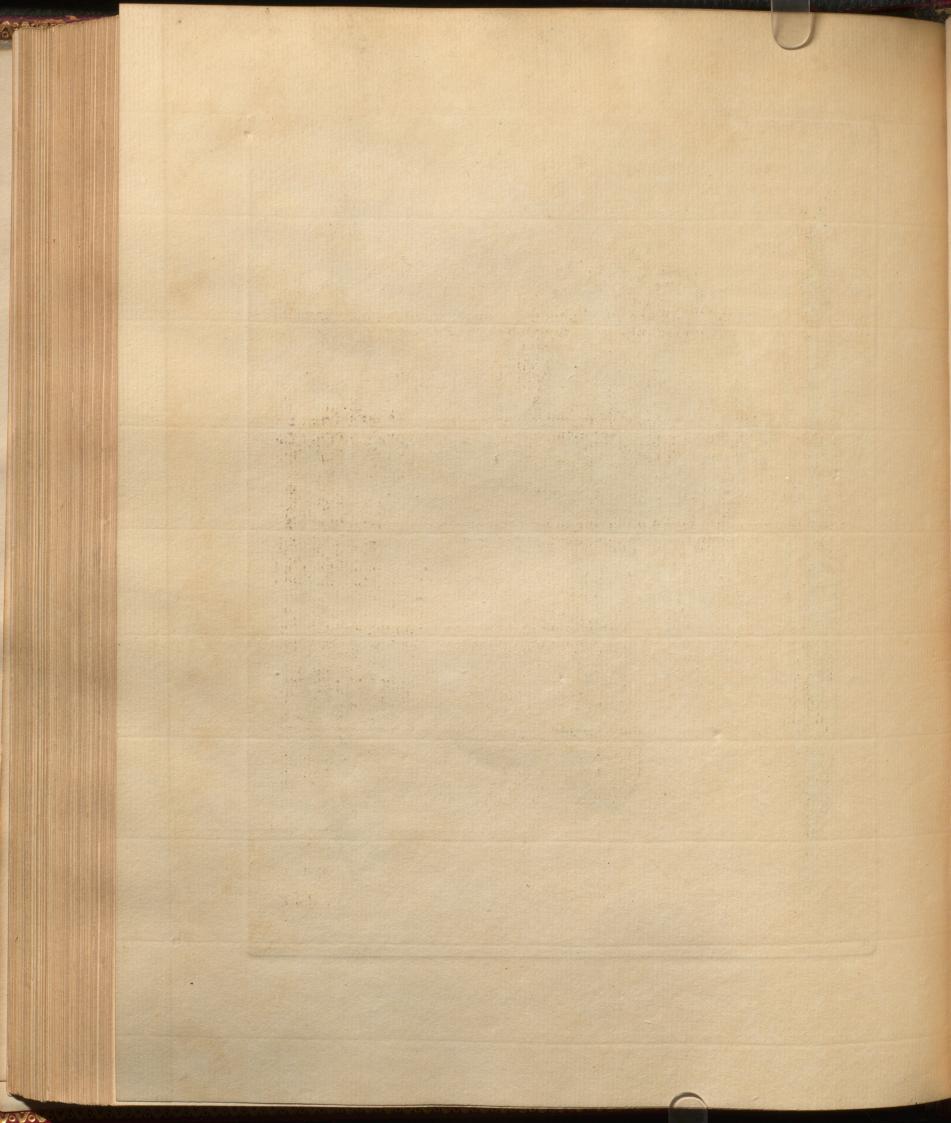
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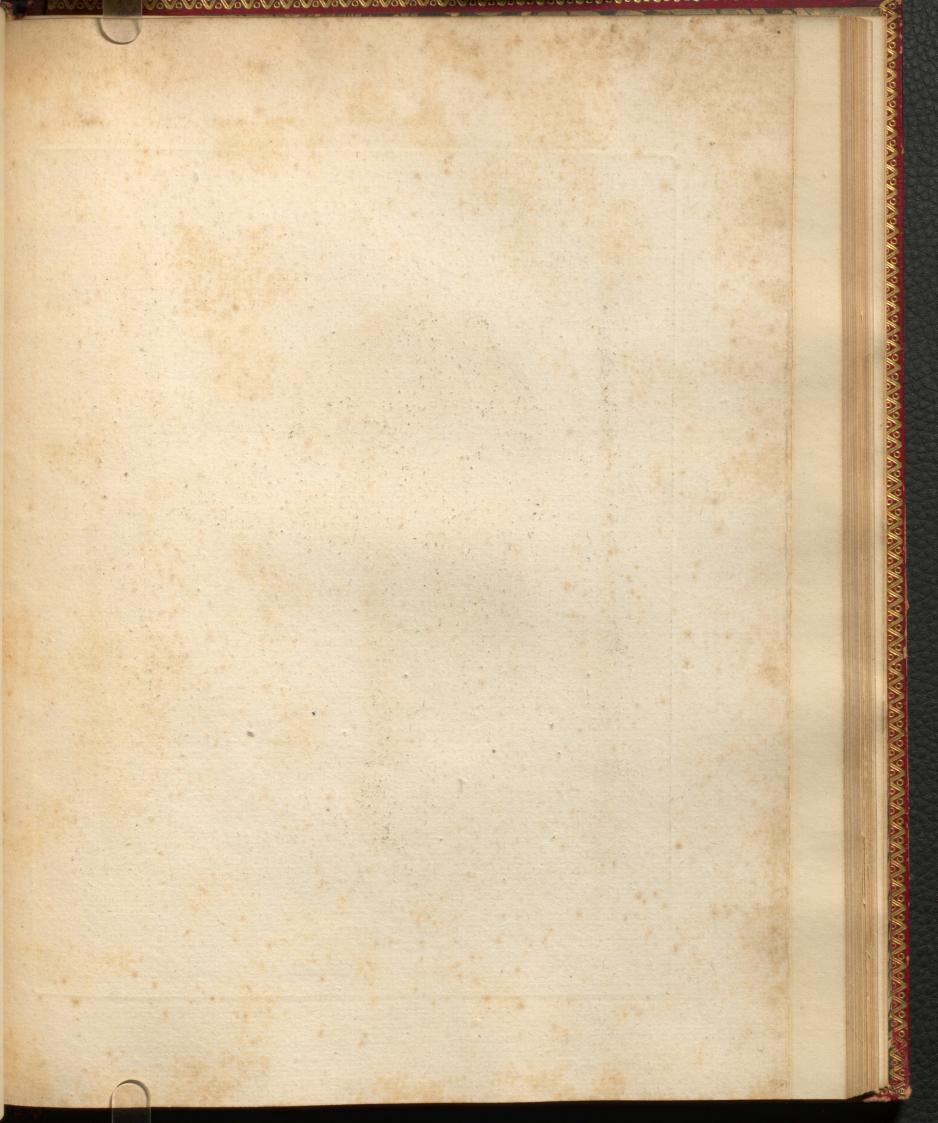
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Tomahawk & Bow.



P.Mar





Tomahanke Bom.



bow made of bone, which was brought by the navigators from this fide of North America, on which was engraven, very intelligibly, every object of the chace. I could diffinguish the Elk, the Rein, the Virginian Deer, and the Dog; the Walrus, and the Seal, with the harpooning of Whales from boats or canoes of two kinds. The chace of birds was not omitted, for a man is to be seen driving a large flock, probably of Geese or Swans, during the feafon of moulting, a method of capture very common in many countries.—With what facility might be reclamed and civilized a people fo ftrongly possessed with a disposition towards the liberal arts! I have caused this fingular bow to be engraven; and, in the same plate, that most terrific Tomahawk of Nootka Sound, called the Taaweesh or Tsuskeah. The offenfive part is of stone, representing a tongue flung out in defiance, as is customary with many favage nations. It issues from a sculpture in wood refembling a human face, in which are fluck human and other teeth: and, to give it a fulness of horror, long locks of scalped hair are placed on several parts, waving, when brandished by the warriors, (who feed on the flesh of their enemies) in a most dreadful manner.

From lat. 55. 20, towards the north, the country increases in height, especially inland, where a range of very lofty mountains, mostly covered with fnow, is feen nearly parallel with the coast, a branch of those I have before mentioned. Above lat. 56 the coast is broken into bays and harbours. In this neighborhood Captain Tschirikow, confort to the great Russian Voyage. navigator Behring, who was separated from his commander by a storm, was fo unfortunate as to touch on an open part of the coast, in about lat. 55, in which he anchored in a most dangerous situation, full of rocks. Having lost his shallop, and after that his small boat, with part of his crew, which he had fent on shore to water, and which were destroyed by the natives, he was obliged to return from his ineffectual voyage \*. A vast conic mountain, called by Captain Cook Mount Edgecumbe +, rifes preeminent above all the others. This is in lat. 57. 3, long. 224. 7. Not remote from hence is the Bay of Islands, the same as the Port los Remedios,

MOUNT EDGECUMBE.

\* Voy. & Decouvertes de Russes, i. 250. + Cook's Voy. ii. 344, tab. 86.

Ii 2

nearly

nearly the ne plus of the Spanish expedition of 1775. The adventurers comforted themselves with having reached lat. 58, and having attained the highest latitude ever arrived at in these seas. This coast, as well as the rest, continued covered with woods.

A high peaked mountain, Mount Fair-weather, and the inlet Cross Sound, next appear. The first is the highest of a chain of snowy mountains, which lie inland about five leagues, in lat. 58. 52. The land between them and the sea was very low, for the trees seemed to arise out of the water. Several sea-birds, with a black ring round the head; the tip of the tail, and upper part of the wings, marked with black; the body bluish above, white beneath, came in view; and on the water sat a brownish Duck, with a deep blue or black head †.

In lat. 59. 18, is a bay, with a wooded isle off its south point, named by Captain Cook, Behring's; in honor of the illustrious Dane who first discovered this part of America, and, as was conjectured, anchored there for a small space. The appearance of the country was terrisic; it consisted of losty mountains (in July) covered with snow: but the chain is interrupted near this port by a plain of a few miles in extent; beyond which the view was unlimited, having behind it a continuance of level country, or some great lake. He had not leisure to make observations; he only named a cape, which advanced into the sea, Cape Elias: this is not at present known; but the name of Mount Elias was bestowed by Captain Cook on a very conspicuous mountain, which lay inland to the north-west of the bay, in lat. 60. 15.

Behring, during the fhort stay he made on the coast, sent his boat on shore to procure water. That great naturalist, Steller, companion of the voyage, took the opportunity of landing. The whole time allotted him was only six hours; during which he collected a few plants, and shot that beautiful species of Jay, N° 139, to which I have given his name. He returned on board with the regret a man of his zeal must feel at the

<sup>\*</sup> Barrington's Miscel. 507. † Cook's Voy. ii. 347.

† Voy. & Decouvertes, i. 254.—Cook, ii. 347, 383. || Cook, ii. tab. 86.

necessity

necessity of so slight an examination in so ample a field. What he could have done, had circumstances permitted, is evident from the excellent collection he formed of natural history respecting Kamtschatka, and some of its islands\*.

Among the plants found by him on the American continent were, Plantago major, Sp. Pl. i. 163; Great Plantane, Fl. Scot. i. 117. K. Virg.: Plantago Afiatica, Sp. Pl. i. 163. K.: Polemonium Cæruleam, Sp. Pl. i. 230: Greek Valerian, Hudson, i. 89. K .: Lonicera Xylosteum, Fl. Sib. iii. 129. K .: Ribes Alpinum, Sp. Pl. i. 291. Fl. Scot. i. 146. K.: Ribes groffularia, Sp. Pl. i. 291; Gooseberries, K. Virg.: Claytonia Virginica? Sp. Pl. i. 294. K. Virg.: Heuchera Americana? Sp. Pl. i. 328. K.: Heracleum Panaces, Sp. Pl. i. 358; or Cow Parsnep, K. which he found in one of the habitations of the natives, tied up in bundles + ready for use. (I have mentioned, at p. exevii. the application of it in Kamtschatka, for the purposes of diffilling an intoxicating liquor; but the Americans are fortunate enough to be ignorant of that art, and only use it as a food.) Vaccinium Myrtillus, Sp. Pl. i. 498; Bilberries, Fl. Scot. i. 200. K.: Vaccinium Vitis Idaa, Virg. Sp. Pl. i. 500; Red Whortle-berries, Fl. Scot. i. 202. K .: Erica, Fl. Sib. 131, No 22. K.: Adoxa Moschatellina, Sp. Pl. i. 527; tuberous Moschatel, Fl. Scot. i. 209. K.: Rubus Idæus, Sp. Pl. i. 706; Rasberry-bush, Fl. Scot. i. 263. K.: Fragaria Vesca, Sp. Pl. i. 708; Wood Strawberry, Fl. Scot. i. 267. Virg. K .: the Leontodon Taraxicum, Virg. B. Sp. Pl. ii. 1122; or common Dandelion, Fl. Scot. i. 433: Absintbium, Sp. Pl. ii. 1188; or common Wormwood, Fl. Scot. i. 467: Artemisia Vulgaris, Sp. Pl. ii. 1188; or Mugwort, Fl. Scot. i. 468: Gnaphalium Dioicum, Sp. Pl. ii. 1199; Mountain Cudweed, or Cat's-foot, Fl. Scot. i. 470. K.: After seu potius Helenium fruticosum, Fl. Sib. ii. 175, B. K. with beautiful yellow flowers: Erigeron acre, Sp. Pl. ii. 1211; Blue Fleabane, Fl. Scot. i. 474. K .: Chryfanthemum Leucanthemum, ii. 1251; Great Daify, or Ox-eye, Fl. Scot. i. 488. B. K. Virg .: Pyrethrum, Fl. Sib. ii. 203,

PLANTS.

<sup>\*</sup> Voy. & Decouvertes, i. 257.

<sup>†</sup> Decouvertes faites par les Russes, i. 256 .- Voyage, ii. tab. 86.

N° 170. B. K.: Achillea Millefolium, Sp. Pl. ii. 1267; Milfoil or Yarrow, Fl. Scot. i. 490. K. Virg.: Empetrum nigrum, Sp. Pl. ii. 1450; Blackberried Heath, Crow-berries, Fl. Scot. ii. 612. K. Virg.: Menispermum Canadense? Sp. Pl. ii. 1468. K. Virg.—I retain the mark of the British vegetables, to shew the vast dilatation of plants; and that of Virg. to shew those which spread to the eastern side of America. Among the plants enumerated by the Reverend Mr. Manasseh Cutler, discovered by him in the neighborhood of Ipswich, in the Massachusetts, not sewer than a hundred and forty are to be found also in Great Britain\*.

To these may be added a few trees and plants observed by our navigators; such as the Pinus Strobus, Sp. Pl. ii. 1490, the white or Weymouth Pine, which grows to an enormous size; Pinus Canadensis, Sp. Pl. ii. 1421, the Canada Pine; three or four other Pines, which we cannot determine; the Cupressus Disticha? Sp. Pl. ii. 1422, the deciduous Cypress; Cupressus Thyoides, Sp. Pl. ii. 1422, or white Cedar; some Birch, Alders, and Willows; wild Rose-bushes; and several plants, the species of which are unknown to us. Probably that useful Lily, the Lilium Kamtschatchense, or Saranne, extends to the continent, for it is found in abundance in the adjacent island Oonalaschka, where it serves as a food, as it does in Kamtschatka.

KAYE'S ISLAND

In this neighborhood, in lat. 59. 49, about Kaye's island ‡, off Cape Suckling, Captain Cook observed variety of birds; among them some Albatrosses, the snowy Gulls, and the common Corvorant: and in the poor woods which encircled the island like a girdle, were seen a Crow, the white-headed Eagle, and another species equally large, of a blacker color, with a white breast.

It was a great misfortune, in this voyage, that the fishes were promiscuously flung into one common cask, so that it is impossible to ascertain the species belonging to each country. In respect to shells, Mr. Martyn,

<sup>\*</sup> Rev. Manasseh Cutler's account of the indigenous plants of North America, vol. i. 396. Mem. Am. Acad.

<sup>†</sup> Voyage, ii. 501. ‡ Same, tab. 85.

of Great Marlborough Street, has, with great skill and most uncommon elegancy, given us the figures of all that he could collect out of the South Sea.

In his 16th Table is the Sattin Limpet from Nootka Sound.

In Tab. 18. The bonnet Limpet.

Tab. 34. The ribbed Trochus.

Tab. 43. The ridged Buccinum.

Tab. 44. The plaited Buccinum.

Tab. 46. The file Buccinum.

Tab. 47. The bellied Buccinum.

Tab. 66. The leafed Purpura.

Tab. 76. The brown Trochus\*.—All these the productions of Nootka. Their colors are

plain: but their forms elegant.

After doubling a cape, called by our great navigator, Hinchinbroke †, he anchored in a vast sound, named by him Prince William's, in lat. 61. 30. secured by a long island, called Mountague's, stretching obliquely across from north-east to south-west. The land round this harbour rose to a vast height, and was deeply covered with snow ‡. Vegetation in these parts seemed to lessen. The principal trees were the Canadian and Spruce Firs, and some of them moderately large.

Besides the quadrupeds sound at Nootka, there is a variety of Bear of a white color; I will not call it the Polar, as that animal inhabits only the severest climates, where it can find dens of snow and isses of ice. An animal of the ermine kind, varied with brown, but the tail scarcely tipt with black. Wolverenes were here, of a very brilliant color; and the earless Marmot was very common. None of these were seen living, but their skins were brought in abundance as articles of commerce. The skin of the head of the male Leonine Seal was also offered to sale: in

PRINCE
WILLIAM'S
Sound.

'QUADRUPEDS.

<sup>\*</sup> These are ranged in the order they stand in his elaborate performance.

<sup>†</sup> Voyage, ii. tab. 86. ‡ See the picturesque view of Snug Corner Coue, tab. 45.

#### PRINCE WILLIAM'S SOUND.

the Voyage it is called the Urfine; but from the great shagginess of the hair I presume I am not wrong in my conjecture. This is the only place in the northern hemisphere in which it was found by the navigators\*.

BIRDS.

Among the birds were the black Sea Pies with red bills, observed before in Van Diemen's Land and New Zealand. A Duck, equal in fize to our Mallard, with a white bill tinged with red near the point, and marked with a black spot on each side near the base: on the forehead a large white triangular spot, and a larger on the hind part of the neck: the rest of the plumage dusky: the tail short and pointed: the legs red. The semale was of duller colors, and the bill was far less gay. Another species resembled the small one sound at Kerguellen's Land. A Diver (Grebe?) of the size of a Partridge; with a black compressed bill: head and neck black: upper part of the body deep brown, obscurely waved with black; the lower part dusky, speckled minutely with white. Honey-suckers, probably migratory in this high latitude, frequently sew round the ships \$\frac{1}{2}\$.

MEN.

Manking here shew a variation from the last described. The natives are generally above the common stature, but many below it: square-built or strong-chested: their heads most disproportionably large; their faces stat, and very broad: their necks short and thick: their eyes small, in comparison to the vast breadth of their faces: their noses had full round points, turned up at the end: their hair long, thick, black, and strong: their beards either very thin or extirpated; for several of the old men had large, thick, but strait beards: their countenances generally full of vivacity, good-nature, and frankness, not unlike the Cristinaux, a people who live far inland, between the little and the great lakes Ouinepique. On the contrary, the inhabitants of Nootka in their dulness resemble the Assimbouels, who live on the western side; and these two nations may have been derived from a common stock with the maritime tribes whom we have had occasion to mention. The skins of the natives of this sound were swarthy,

\* Voy. ii. 377.

+ Same, 378.

1 Dobbs, 24.

possibly

possibly from going often naked; for the skins of many of the women, and the children, were white, but pallid. Many of the women were distinguishable from the men by the delicacy of their features, which was far from the case with those of Nootka.

In these parts, within the distance of ten degrees, is a change of both dress and manners. The cloak and mantle are here changed for a close habit, made of the skins of different beasts, usually with the hair outwards; or of the skins of birds, with only the down remaining; some with a cape, others with a hood: over which, in rainy weather, is worn a garment like a carter's frock, with large sleeves, and tight round the neck, made of the intestines probably of the whale, and as fine as gold-beater's least. On the hands are always worn mittens, made of the paws of a bear; and the legs are covered with hose, reaching to midway the thigh. The head is generally bare; but those who wear any thing, use the high truncated conic bonnet, like the people of Nootka\*. In this place only was observed the Calumet; a stick about three feet long, with large feathers, or the wings of birds, tied to it. This was held up as a sign of peace.

I leave the reader to amuse himself in the Voyage, by the account of the strange custom of the natives in cutting through their under lip, and giving themselves the monstrous appearance of two mouths; in the orifice they place a bit of bone or shell by way of ornament. This custom extends to the distant Mosquitos, and even to the Brasilians; but seems unknown in other parts of America.—I endeavour to confine myself to passages which may lead to trace the origin of the people. These paint their faces, and puncture or tattow their chins. They are most remarkably clean in their food, and in their manner of eating it, and even in the keeping of their bowls and vessels. In their persons they are equally neat and decent, and free from grease or dirts: in this they seem an exception to all other savages.

\* Voyage, ii. 368, 369. + Same, 369, tab. 46, 47. ‡ Dampier, i. 32, De Bry. Brasil, 165. \$ Voyage, ii. 374.

Kk

They

#### COOK'S RIVER.

BOATS.

They have two kinds of boats; one large, open, and capable of containing above twenty people. It is made of the skins of marine animals, distended on ribs of wood, like the vitilia navigia of the Britons, at the time in which they were on a level with these poor Americans; or like the woman's boat of the Greenlanders and Eskimaux. The canoes are exactly of the same construction with those of the latter; and the difference of both is very trivial. The canoes of these Americans are broader than those of the eastern side of the continent; and some have two circular apertures, in order to admit two men\*. Every weapon which these people have for the chace of quadrupeds or fish, is the same with those used by the Greenlanders: there is not one wanting.

CAPE BEDE.

From Prince William's found the land trends north-west, and terminates in two headlands, called Cape Elizabeth and Cape Bede; these, with Cape Banks on the opposite shore, form the entrance into the vast estuary of Cook's river; in the midst of which are the naked isses, distinguished by the name of the Barren. Within, to the west, is a losty two-headed mountain, called Cape Douglas; which is part of a chain of a vast height, in which was a vulcano, at the time this place was visited, emitting white smoke: and in the bottom of a bay, opposite to it, is an island, formed of a losty mountain, on which was bestowed the name of Mount St. Augustine †. The estuary is here of a great breadth, owing to a bay running opposite to Mount Augustine deeply to the east.

Mount St. Augustine.

Cook's RIVER.

The estuary of Cook's river is of great length and extent. The river begins between Anchor Point and the opposite shore, where it is thirty miles wide: the depth very considerable, and the ebb very rapid. Far within, the channel contracts to sour leagues, through which rushes a prodigious tide, agitated like breakers against rocks. The rise of the tide in this confined part was twenty-one feet. It was examined seventy leagues from the entrance, as far as lat. 61. 30, long. 210, and its boundaries were sound to be flat, swampy, and poorly wooded, till they reached the soot of the

\* Voyage, ii. 371.

f See the chart, ii. tab. 44.

great

#### COOK'S RIVER.

great mountains. Towards the north, it divides into two great branches, or perhaps distinct rivers. That to the east is distinguished by the name of Turn-again river. The first is a league wide, and navigable, as far as was tried, for the largest ships, and continued very brackish; there is therefore the greatest probability of its having a very long course, and being, in after times, of confiderable use in inland navigation: that it is of some even at present is very certain; for here, as well as in Prince William's found, the Indians were possessed of glass beads and great knives of English manufacture, which the Hudson's bay company annually fend in great quantities, and exchange for furs with the natives, who travel to our fettlements very far from the west. The company also fend copper and brass vessels; but neither copper or iron in bars. There does not feem to be any direct dealings with the Indians of this coast: the traffic is carried on by intermediate tribes, who never think of bringing furs to a people fo amply supplied as the Indians are who deal with our factories. Nations who use the most precious furs merely as a defence from the cold, make no distinction of kinds: if they could get more beads or more knives for the skins of Sea Otters than any other, they would instantly become articles of commerce, and find their way across the continent to the European fettlements.

From Turn-again river to the nearest part of Hudson's bay, is fifty-five degrees, or about fixteen hundred miles; but from the most western part of Arapathescow lake (which is intermediate) is only twenty-fix degrees, or about feven hundred and fifty miles. There is no discharge out of that vast water but what runs into Hudson's bay. We have some obscure accounts of rivers\* which take a western course from the countries east of this coast: some of which may be those which have been seen by our navigators, and which, by means of lakes or other rivers falling into them, may prove a channel of intercourse between these Indians and the Hudson's bay

K k 2 company

<sup>\*</sup> Particularly from one Joseph de la France, who, in 1739, made a very long journey to the west, and was a very observant man. See Dobbs, Hudson's Bay, 21, 34, 35.

#### ALASCHKA

company, as foon as our friendly Indians become acquainted with the value of these maritime furs.

Dogs.

The inhabitants of Cook's river differed very little from those of Prince William's found. They had Dogs, which were the first seen on the coasts; Sea Otters, Martins, and white Hares: and they were plentifully supplied with Salmon and Holibut.

CAPE ST. HERMO-GENES.

RICA.

After leaving the entrance into the river, appears Cape St. Hermogenes, discovered first by Behring. It proved a naked lofty island, about six leagues in circuit, and divided from the coast by a channel a league broad. ALASCHKA, CON- This lies in lat. 58. 15, off the vast peninfula Alaschka, which begins between the estuary of Cook's river and Bristol bay, which bound its isthmus. It points fouth-west, and continues the crescent formed by the islands which cross the sea from Kamtschatka. Alaschka is the only name given by the natives to the continent of America. The land to the west of Cook's river rifes into mountains, with conoid tops thickly fet together. The coast is frequently bold, and the rocks break into pinnacles of picturesque forms: the whole is fronted by groups of isles and clusters of small rocks. In a word, the country and shores are the most rugged and disjointed imaginable, and bear evident marks of having undergone some extraordinary change.

KADJAK.

Among the isles, those of Schoumagin are the most important, which received their name from having been the place of interment of one of BEHRING's crew, the first which he lost in these seas. The principal lies the farthest to the west, and is called Kadjak: it is about a hundred versts long, and from twenty to thirty broad; and, from the account of Demetrius Bragin, who visited it from Oonalashka in 1776, is very populous. The inhabitants fpoke a language different from those of that island: it seemed a dialect of the Greenlanders. They called their wooden shields Kuyaky, probably because they resemble a kaiak, or a little canoe, a Greenland word for that species of boat; and themselves Kanagist, as the others style themfelves Karalit. They have likewise the woman's boat, like the people of Prince William's found: in fact, they feem to be the same people, but more refined. They were armed with pikes, bows and arrows, and wooden fhields.

shields. Their shirts were made of the skins of birds; also of the EARLESS MARMOT, Foxes, and Sea Bears, and some of fishes skins. Dogs, Bears, common Otters, and Ermines, were observed here. Their dwellings were made with timber, and were from fifteen to twenty fathoms long, covered with a thatch and dried grass. Within they were divided into compartments for every family, and every compartment lined neatly with mats. The entrance was on the top, covered with frames, on which were stretched the membranes of dried intestines instead of glass\*. These people seemed to have made far greater progress in the arts than their neighbors. They worked their carpets in a very curious manner; on one fide close set with beaver wool. The Sea Otters skins which they brought for fale were in some parts shorn quite close with sharp stones, so that they glistened and appeared like velvet. They shewed strong proofs of genius in their invention to preserve themselves from the effects of the Russian fire-arms. They had the spirit to make an attack, and formed skreens with three parallel perpendicular rows of stakes, bound with fea-weeds and ofiers; their length was twelve feet, and thickness three: under the shelter of these they marched; but their success was not correspondent to their plan +: a fally of the Russians disconcerted them, and put them to the rout.

The island consists of hills mixed with lowlands. It abounds with bulbs, roots, and berries, for food; with shrubs, and even trees sufficiently large to be hollowed into canoes capable of carrying five perfons t. In this kind of boat they differ from those of the Greenlanders.

Off the extremity of the peninfula of Alaschka is Holibut island, in HOLIBUT ISLE, lat. 54, rifing into a lofty pyramidal mountain, lying opposite to the narrow shallow streight which lies between the isle Oonemaka and Alaschka.

+ Coxe's Ruff. Difc. 12.

IMS.

<sup>\*</sup> From a MS. communicated to me by Dr. PALLAS, Bragin was commander of a vessel which was fitted out by the merchants on a voyage to the new-discovered islands, and sailed from Ochotsk in 1772. About ten years prior to this, another voyage was made to Kadjak by Stephen Glottoff.—See Coxe's Disc. 108.

#### OONEMAK AND OONALASHKA:

The chain on the continent is seen to rise into stupendous heights, covered with snow: among them several of the hills appear to rise insulated, and of a conic form. One was a vulcano, slinging up volumes of black smoke to a great height\*, then streaming before the wind with a tail of vast length and picturesque appearance. It often took a direction contrary to the point the wind blew from at sea, notwithstanding there was a fresh gale; a demonstration of the existence of a contrary current of air in the upper region to that which was below. It lies in lat. 54. 48 north, long 195. 45 W. and is evidently a link in the vulcanic chain, which extends, in the southern hemisphere, as low at lest as that of St. Clement in Chili, in lat. 45. 30.

OONEMAK.

The extremity of Alaschka ends abrupt, and has opposite to it an island called Oonemak or Unmak, of nearly a correspondent breadth, separated from it by a very narrow and shallow channel, situated in lat. 54. 30, and leading into Bristol bay, pervious only by boats or very small vessels. The isle is a hundred versts long, and from seven to sisteen broad; and has in the middle a vulcano. In the low parts several hot springs burst forth, to which the islanders carry the fish or stess they want to boil; and they are also fond of bathing in the temperate parts.

OONALASHKA.

To the west are the small isles of Oonella and Accotan: at a small distance from them is Oonalashka or Aghõun-alaiska;, a name evidently referring to the continent. My MS. calls its length a hundred and twenty versts, its breadth from ten to eighteen. It is the most remote of the Russian colonies, who have now made settlements on most of the isles between Asia and America; all under the care of private adventurers. The voyage from Ochotsk or Kamtschatka lasts three or four years; and is solely undertaken for the sake of the skins of Sea Otters. Possibly other reasons will, in a little time, induce them to attempt the colonization of the continent. Timber may be one; for their northern Asiatic dominions and their islands yield none. I foresee docks and timber-yards in all convenient places. At

present,

<sup>\*</sup> See the plate, N° 87, vol. ii. for the feveral views.

† Bragin's Voy. MS.

† Doctor Pallas, MS.

present, the natives of these isles have only the skin-covered canoes\*, and even for the ribs they are obliged to the chance of drift-wood. In these, in drefs, and in weapons, they refemble the Eskimaux. The language is a dialect of the Eskimaux. They are rather of low stature. They have short necks, fwarthy chubby faces, black eyes, and straight long black hair. The fashion of wearing feathers or bits of sticks in their noses is used in Oonalashka. Both sexes cut their hair even over their foreheads: the men wear theirs loofe behind; the females tie theirs in a bunch on the top of their head: the first wear long loose frocks, of the skins of birds; the last of the skins of Seals. The men sling over their frocks another, of the guts of the cetaceous animals, dried and oiled, to keep out the water +; and, to defend their faces from the weather, they wear a piece of wood, like the front of the bonnet of an English lady 1. Some use the bonnet in the form of the truncated cone. The women slightly tattow their faces, and often wear a string of beads pendent from their noses; both sexes perforate their under lip, but it is very uncommon to fee any except the females stick in it the ornamental bone. The nose-ornaments extend far inland on the continent; for the Americans, who trade with the Hudson's bay company, use them: but from the figures given by De Bry, they do not seem ever to have reached the people of Virginia and Florida. They inhabit jourts, or fubterraneous dwellings, each common to many families, in which they live in horrible filthiness: but they are remarkably civilized in their behaviour; and have been taught by the Russians to pull off their caps, and to bow, in their falutations.

They bury their dead on the fummits of hills, and raise over the spot a barrow of stones, in the manner customary in all the north of Europe in very early days.

On the north fide of the promontory Alaschka, the water decreases considerably in depth, and the mountains recede towards the bottom far inland, and leave a large tract of low land between them and the sea. Here it

+ See their dreffes, tab. 48, 49, 56, 57.

\* See their boats, tab. 50. † See ‡ Voyage, ii. 510. § Same, 521.

forms

NATIVES.

BARROVS

BRISTOL BAY

forms a great bay, called Bristol; with a vast river at the end, with an entrance a mile broad, feated in lat. 58. 27. Cape Newenbam, lat. 58. 42, a rocky promontory, is the northern horn of the bay, eighty-two leagues from Cape Oonemak, its fouthern: an universal barrenness, and want of vegetation, appeared in the neighborhood of the former. The WALRUSES began, the 15th of July, to shew themselves in great numbers about this place: a proof that ice is not effential to their existence. The inhabitants of this coast were drefsed much more squalidly than those before seen; but, like the others, deformed their nofes and lips. They shaved their head or cut the hair close, and only left a few locks behind or on one fide. fomewhat in the Chinese fashion. From Cape Newenbam, the continent runs due north. To the west is Gore's island, distinguished by a vast cliff, in lat. 60. 17, long. 187. 30, called Point Upright; and near it a most rugged, high, rocky islet, named the Pinnacles\*. Myriads of the Auk tribe haunted these precipices. This seems the extreme northern resort of the SEA OTTER.

GORE'S ISLE.

SEA OTTERS.

From Shoal-nefs, in lat. 60, long. 196, there is a gap in the American geography, as far as Point Shallow Water, lat. 62. 50; and not far from thence were the fymptoms of the discharge of some great river, from the uninvestigated part. Beyond Point Shallow, in lat. 63. 33, is Cape Cape Stephens; and before it, at a small distance, Stuart's isle. These make the southern points of Norton's Sound, formed by a vast recess of the land to the east. All the land near the sea is low and barren, bounded inland by mountains. The trees, which were Birch, Alder, Willow, and Spruce, very small; none of the last above six or eight inches in diameter: but the drift-wood, which lay in plenty on the shore, much larger; having been brought down the rivers from land more favorable to its growth. Towards the bottom of the sound, Cape Denbigb juts far to the west into the water, and forms a peninsula. It has been an island; for there are evident marks on the isthmus, that the sea had once possessed its place: a proof of the loss

\* See tab. 87.

of the element of water in these parts, as well as in other remote parts of the globe.

The found, from Cape Denbigb, is fuddenly contracted, and is converted into a deep inlet, feemingly the reception of a large river. The continent, in these parts, consists of vast plains, divided by moderate hills; the former watered by feveral rivers meandering through them. Vegetation improves in proportion to the distance from the sea, and the trees increase in bulk. A promontory, called Bald Head, bounds the northern entrance into this inlet. Farther to the west Cape Darby, in lat. 64. 21, makes the northern horn of this great found.

Numbers of people inhabit this coast. The men were about five feet two inches high; and in form and features refembled all the natives feen by the navigators fince they left Nootka Sound. They had, in their under lip, two perforations. The color of their skin was that of copper: their hair short and black: the beard of the men small: their language a dialect of the Eskimaux. Their clothing is chiefly of Deer skins, with large hoods, made in the form of loofe jackets, fcarcely reaching lower than half the thigh; where it was almost met by a great wide-topped boot. The Eskimaux occasionally stick their children in the top: the women of this country place them more commodiously within the upper part of the jacket, over one shoulder\*. In language there seems considerable conformity. They had, like them, the woman's boat, and the Kaiack: the first they fometimes made use of as a protection from the weather, by turning it upfide down, and sheltering beneath. But their hovels were the most wretched of any yet feen; confifting of only a floping roof (without any fide walls) composed of logs; a floor of the fame; the entrance at one end, and a hole to permit the escape of the smoke. These poor people THEIR SENSIBIfeem very fusceptible of feelings for the misfortunes of sch other, which would do honor to the most polished state. A family appeared, one of which was a most distorted figure, with scarcely the human form: another, feemingly the chief, almost blind: the third, a girl: the last, the wife.

CAPE DARBY.

NATIVES.

\* See tab. 54.

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### CAPE DARBY. SLEDGE ISLAND.

She made use of Captain King to act as a charm to restore her blind husband to his sight\*. He was first directed to hold his breath; then to breathe on, and afterwards to spit on his eyes. We are not without similar superstitions. The Romans† applied the same remedy to diseases of the same part: but I doubt whether they, or our polished nation, ever expressed the same feelings as this poor woman did. She related her story in the most pathetic manner; she pressed the hands of the Captain to the breast of her husband, while she was relating the calamitous history of her family; pointed sometimes to the husband, sometimes to the cripple, and sometimes to the poor child. Unable to contain any longer, she burst into tears and lamentation. She was followed by the rest of her kindred in unison, which, I trust, filled the eyes of the civilized beholders, as their relation has mine.

From Cape Darby the land trends to the west, and ends in Point Rodney; low land, with high land far beyond, taking a northerly direction inland. Off this point, in lat. 64. 30, is Sledge Island, fo called from a fledge being found on it, resembling those which the Russians use in Kamtschatka to carry goods over the snow. It was ten feet long, twenty inches broad, with a rail on each fide, and shod with bone; all neatly put together, in some parts with wooden pins, but mostly with thongs of whalebone: a proof of the ingenuity of the natives. Whether it was to be drawn with dogs or rein-deer, does not appear; for the island was deserted, and only the remains of a few jourts to be feen. In lat. 64. 55, long. 192, is King's island, named in honor of the able and worthy continuator of the voyage. The continent opposite to it bends towards the east, and forms a shallow bay; then suddenly runs far into the sea, and makes the most western extremity yet known, and probably the most western of all. On it were feveral huts; and stages of bone, such as had been observed in the Tschutschi country. This cape forms one side of Behring's streights,

<sup>\*</sup> See Voyage, ii. 481.

<sup>+</sup> Mulieris salivam quoque jejunæ potentem dijudicant oculis cruentatis,—Plin. Hist. Nat. lib. xxviii. c. 7.

and lies nearly opposite to East Cape, on the Asiatic shore, at the small distance of only thirty-nine miles. This lies in lat. 65. 46; is named Cape Prince of Wales; is low land, and the heights, as usual, appeared beyond; among which is a remarkable peaked hill. It would be unjust to the memory of past navigators, not to fay, that there is the greatest probability that either this cape, or part of the continent adjacent to it, was discovered, in 1730, by Michael Gwosdew, a land surveyor attendant on the Coffack, Colonel Schestakow, in the unfortunate expedition undertaken by him to render the Tschutschi tributary\*.

Here begins the Icy Sea or Frozen Ocean. The country trends strongly to the east, and forms, in lat. 67. 45, long. 194. 51, Point Mulgrave; the land low, backed inland with moderate hills, but all barren, and deftitute of trees. From hence it makes a slight trend to the west. Cape Lisburn lies in lat. 69; and Icy Cape, the most extreme land seen by any navigators on this side, was observed in lat. 70. 29, long. 198. 20, by our illustrious feaman, on August 18th 1778. The preceding day he had made an advance as high as 70. 41; but, baffled by impenetrable ice, upon the justest reasoning was obliged to give up all thoughts of the north-east passage: which reasons were confirmed, in the following year, by his successor in command, Captain CLERKE. All the trials made by that persevering commander could not attain a higher latitude than 70. 11, long. 196. 15. He found himself laboring under a lingering disease, which he knew must be fatal, unless he could gain a more favorable climate; but his high sense of honor, and of his duty to his orders, determined him to perfift, till the impossibility of fuccess was determined by every officer. He gave way to their opinion, failed towards the fouthward on July 21st, and on August 22d honorably funk, at the age of thirty-eight, off the coast of Kamtschatka, under a disorder contracted by a continued scene of hardships, endured from his earliest youth in the services of his country †.

To fuch characters as these we are indebted for the little we know, and Of THE ICY SEA. probably all that can be known, of the Icy SEA. The antients had some

POINT MUL-GRAVE.

<sup>\*</sup> Decouvertes, &c. i. 166.

<sup>+</sup> See the particulars of his services, Voyage, iii. 280.

obscure notion of its coasts, and have given it the name of Scythicum Mare; a cape jutting into it was styled Scythicum Fromontorium; and an island at the bottom of a deep bay to the west of it, Scythica Infula. It is following the conjectures of the ingenious to say, that the first may be the Cape falmal, and the last, Nova Zemlja, which some will make the Infula Tazata of Pliny, as it resembles in name the river Tas, which slows almost opposite to it into the gulph of Ob\*. The knowledge which the antients had of these parts must have been from traffic. The channels through which it was conveyed are pointed out in p. CLIV. of this work.

The Icy SEA extends from Nova Zemlja to the coast of America. We have feen how unable even the Russians have been to furvey its coasts, except by interrupted detail, notwithstanding it formed part of their own vast empire. To our navigators was given the honor not only of fettling parts of its geography with precision, but of exploring the whole space between the most northern promontory of Asia and the farthest accessible part of America. This was a tract of one hundred leagues +. The traverling it was a work of infinite difficulty and danger. The fea shallow; and the change from the greatest depth, which did not exceed thirty fathoms, to the left, which was only eight, was fudden: the bottom muddy, caused by the quantity of earth brought down from the vast rivers which pour into it from the Afiatic fide. We suspect that it receives but few from the American, their general tendency being east and west. The Icy Sea is shallow, not only because its tides and currents are very inconsiderable; but its outlet through the streights of Behring very narrow, and even obstructed in the middle by the islands of St. Diomedes: both which circumstances impede the carrying away of the mud. The current, small as it is, comes chiefly from the fouth-west, and is another impediment. The land of each continent is very low near the shores, and high at a small distance from them: the former is one instance of a correspondent shallowness of water. The foundings off each continent, at the same distances from the shore, were exactly the same.

DEPTH.

\* Strablenberg Hift. Russia, 113.

+ Voyage, iii. 277.

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The ice of this fea differs greatly from that of Spitzbergen. It probably is entirely generated from the sea-water. The Icy Sea seems to be in no part bounded by lofty land, in the valleys of which might have been formed the stupendous icebergs, which, tumbling down, form those lofty islands we had before occasion to mention. The ice here is moveable, except about the great headlands, which are befet with a rugged mountanous ice. It is notorious, that a strong gale from the north in twenty-four hours covers the whole coast, for numbers of miles in breadth; will fill the streights of Behring, and even the Kamtschatkan seas; and in smaller pieces extend to its islands. In the Icy Sea it consists chiefly of field-ice. Some fields, very large, and furrounded with leffer, from forty to fifty yards in extent, to four or five; the thickness of the larger pieces was about thirty feet under water; and the greatest height of others above, about fixteen or eighteen. It was transparent, except on the furface, which was a little porous, and often very rugged: the rest compact as a wall. At times it must pack; for the mountanous ice which the Coffack Morkoff ascended (see p. clxix.) must have been of that nature. The destruction of the ice is not effected by the fun, in a climate where fogs reign in far greater proportion than the folar beams; neither will the streights of Behring permit the escape of quantity sufficient to clear the sea of its vast load. It must, in a little time, become wholly filled with it, was it not for the rage of the winds, which dashes the pieces together, breaks and grinds them into minute parts, which foon melt, and refolve into their original element.

The animals of this sea are very sew, and may be reduced to the Polar Bear, the Walrus, and Seals. The first does not differ from those of other arctic countries: it is beautifully engraven in tab. LXXIII. of the Voyage. Amidst the extraordinary scenery in tab. LII. is given the only accurate figure of the Walrus I have ever seen. I cannot but suspect it to be a variety of the species sound in the Spitzbergen seas. The tusks are more slender, and have a slight distinguishing slexure: the whole animal is also much less. The length of one (not indeed the largest) was only nine feet four inches; its greatest circumserence seven feet ten; weight, exclusive

ICE.

ANIMALS.

clusive of the entrails, about eleven hundred pounds. They lay on the ice by thousands; and in the foggy weather cautioned our navigators, by their roaring, from running foul of it. They are usually seen sleeping, but never without some centinels to give notice of approaching danger: these awaken the next to them, they their neighbors, till the whole herd is roused. These animals are the objects of chace with the Tschutschi, who eat the slesh, and cover their boats and hovels with the skins. Whales abound in this sea. Fish, the food of Seals, and partly of the polar Bears, must be found here, notwithstanding they escaped the notice of the navigators. Shells and sea-plants, the food of the Walrus, cannot be wanting.

Many species of birds (which will occur in their place) were seen traversing this sea. Geese and Ducks, were observed migrating southward in August; whether from their breeding-place in a circum-polar land, or whether from the probably far-extending land of America, is not to be determined. Drist-wood was very seldom seen here. Two trees, about three seet in girth, with their roots, were once observed, but without bark or branches; a proof that they had been brought from asar, and lest naked by their contest with the ice and elements.

The fea, from the fouth of Behring's streights to the crescent of isles between Asia and America, is very shallow. It deepens from these streights (as the British seas do from those of Dover) till soundings are lost in the Pacisic Ocean; but that does not take place but to the south of the isles. Between them and the streights is an increase from twelve to sifty sour fathom, except only off St. Thaddeus Noss, where there is a channel of great depth. From the vulcanic disposition I am led to believe not only that there was a separation of the continents at the streights of Behring, but that the whole space, from the isles to that small opening, had once been occupied by land; and that the sury of the watery element, actuated by that of sire, had, in most remote times, subverted and overwhelmed the tract, and left the islands monumental fragments.

Whether that great event took place before or after the population of America, is as impossible, as it is of little moment, for us to know. We

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FISH.

BIRDS.

are indebted to our navigators for fettling the long dispute about the point from which it was effected. They, by their discoveries, prove, that in one place the distance between continent and continent is only thirty-nine miles, not (as a celebrated cavilift \* would have it) eight hundred leagues. This narrow streight has also in the middle two islands, which would greatly facilitate the migration of the Afiatics into the New World, fupposing that it took place in canoes, after the convulsion which rent the two continents afunder. Besides, it may be added, that these streights are, even in the fummer, often filled with ice; in winter, often frozen: in either case mankind might find an easy passage; in the last, the way was extremely ready for quadrupeds to cross, and stock the continent of America. I may fairly call in the machinery of vulcanoes to tear away the other means of transit farther to the fouth, and bring in to my affiftance the former supposition of solid land between Kamtschatka and Oonalascha, instead of the crescent of islands, and which, prior to the great catastrophe, would have greatly enlarged the means of migration; but the case is not of that difficulty to require the solution. One means of paffage is indifputably established.

But from which part of the vast expanse of the north-eastern world, to fix on the first tribes who contributed to people the new continent, now inhabited almost from end to end, is a matter that bassles human reason. The learned may make bold and ingenious conjectures, but plain good sense cannot always accede to them. As mankind encreased in numbers, they naturally protruded one another forward. Wars might be another cause of migrations. I know no reason why the Asiatic north might not be an officina virorum, as well as the European. The overteeming country, to the east of the Riphean mountains, must find it necessary to discharge its inhabitants: the first great wave of people was forced forward by the next to it, more tumid and more powerful than itself: successive and new impulses continually arriving, short rest was given to that which spread over a more eastern tract; disturbed again and again, it covered fresh regions;

The author of Recherches Philosophiques sur les Americains, i. 136.

at length, reaching the farthest limits of the Old World, found a new one. with ample space to occupy unmolested for ages; till Columbus cursed them by a discovery, which brought again new fins and new deaths to both worlds.

The inhabitants of the New do not confift of the offspring of a fingle nation: different people, at feveral periods, arrived there: and it is impossible to fay, that any one is now to be found on the original spot of its colonization. It is impossible, with the lights which we have so recently received, to admit that America could receive its inhabitants (at left the bulk of them) from any other place than eastern Asia. A few proofs may be added, taken from customs or dresses common to the inhabitants of both worlds: fome have been long extinct in the old, others remain in both in full force.

CUSTOMS COM-AND THE NORTH OF ASIA.

The custom of scalping was a barbarism in use with the Scythians, who MON TO AMERICA carried about them at all times this favage mark of triumph: they cut a circle round the neck, and stripped off the skin, as they would that of an ox\*. A little image, found among the Kalmuss, of a Tartarian deity, mounted on a horse, and sitting on a human skin, with scalps pendent from the breast, fully illustrates the custom of the Scythian progenitors, as described by the Greek historian. This usage, as the Europeans know by horrid experience, is continued to this day in America. The ferocity of the Scythians to their prisoners extended to the remotest part of Asia. The Kamtschadales, even at the time of their discovery by the Rushanst, put their prisoners to death by the most lingering and excruciating inventions; a practice in full force to this very day among the aboriginal Americans. A race of the Scythians were styled Anthropophagit, from their feeding on human flesh. The people of Nootka Sound still make a repast on their fellow-creatures §: but what is more wonderful, the favage allies of the British army have been known to throw the mangled limbs of the

French

<sup>\*</sup> Herodotus, lib. iv. - Compare the account given by the historian with the Tartarian icunculus, in Dr. PALLAS's Travels, i. tab. x. a.

<sup>+</sup> Hist. Kamtschatka, 57. \$ Mela, lib. ii. c. 1. § Voyage, ii.

French prisoners into the horrible cauldron, and devour them with the same relish as those of a quadruped \*.

The Scythians were fayed, for a certain time, annually to transform themselves into wolves, and again to resume the human shape †. The new-discovered Americans about Nootka Sound, at this time disguise themselves in dresses made of the skins of wolves and other wild beasts, and wear even the heads sitted to their own ‡. These habits they use in the chace, to circumvent the animals of the sield. But would not ignorance or superstition ascribe to a supernatural metamorphosis these temporary expedients to deceive the brute creation?

In their marches the Kamtschadales never went abreast, but followed one another in the same track §. The same custom is exactly observed by the Americans.

The Tungus, the most numerous nation resident in Sibiria, prick their faces with small punctures, with a needle, in various shapes; then rub into them charcoal, so that the marks become indelible . This custom is still observed in several parts of America. The Indians on the back of Hudson's bay, to this day perform the operation exactly in the same manner, and puncture the skin into various sigures; as the natives of New Zealand do at present, and as the antient Britons did with the herb Glassum. or Woad ; and the Virginians, on the first discovery of that country by the English \*\*. Herodian delivers down to us this custom of the Britons. He says that they painted their bodies with the figures of all forts of animals, and wore no cloaths, lest they should hide what was probably intended to render themselves more terrible to their enemies.

The Tungust use canoes made of birch-bark, distended over ribs of wood, and nicely sewed together ††. The Canadian, and many other Ame-

|| Bell's Travels, oct. ed. i. 240. \*\* De Bry, Virginia, tab. iii. 111. ¶ Herodian in †† Ysbrandt Ides,

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rican

<sup>\*</sup> Colden's Five Indian Nations, i. 155. † Herodotus, lib. iv.

<sup>†</sup> Voyage, ii. 311. 329.—A very curious head of a Wolf, fitted for this use, is preserved in the LEVERIAN Museum.

<sup>§</sup> Hist. Kamtsch. 61. Vita Severi, lib. iii. in Harris's Coll. ii. 929.

CCLXII

rican nations, use no other fort of boats. The paddles of the Tungusiare broad at each end; those of the people near Cook's river, and of Oonalascha, are of the same form.

In burying of the dead, many of the American nations place the corpse at full length, after preparing it according to their customs; others place it in a sitting posture, and lay by it the most valuable cloathing, wampum, and other matters. The Tartars did the same: and both people agree in covering the whole with earth, so as to sorm a tumulus, barrow, or carnedd \*.

Some of the American nations hang their dead in trees. Certain of the Tungusi observe a similar custom.

I can draw fome analogy from dress: conveniency in that article must have been consulted on both continents, and originally the materials must have been the same, the skins of birds and beasts. It is singular, that the conic bonnet of the Chinese should be sound among the people of Nootka. I cannot give into the notion, that the Chinese contributed to the population of the New World; but I can readily admit, that a shipwreck might furnish those Americans with a pattern for that part of the dress.

SIMILAR FEA-

In respect to the seatures and form of the human body, almost every tribe found along the western coast has some similitude to the Tartar nations, and still retain the little eyes, small noses, high cheeks, and broad faces. They vary in size, from the lusty Calmucs to the little Nogaians. The internal Americans, such as the Five Indian nations, who are tall of body, robust in make, and of oblong faces, are derived from a variety among the Tartars themselves. The sine race of Tschutski seem to be the stock from which those Americans are derived. The Tschutski again, from that sine race of Tartars, the Kabardinski, or inhabitants of Kabarda.

ESKIMAUX.

But about Prince William's Sound begins a race, chiefly distinguished by their dress, their canoes, and their instruments of the chace, from the tribes to the south of them. Here commences the Eskimaux people, or

<sup>\*</sup> Compare Colden, i. 17; Lafitau, i. 416; and Archaologia, ii. 222. tab. xiv.

the race known by that name in the high latitudes of the eastern fide of the continent. They may be divided into two varieties. At this place they are of the largest size. As they advance northward they decrease in height, till they dwindle into the dwarfish tribes which occupy some of the coasts of the Icy Sea\*, and the maritime parts of Hudson's bay, of Greenland, and Terra de Labrador. The famous Japanese map + places some islands seemingly within the streights of Behring, on which is bestowed the title of Ya Zue, or the kingdom of the dwarfs. Does not this in some manner authenticate the chart, and give us reason to suppose that America was not unknown to the Japanese, and that they had (as is mentioned by Kampfer and Charlevoix 1) made voyages of discovery, and, according to the last, actually wintered on the continent? That they might have met with the Eskimaux is very probable; whom, in comparison of themselves, they might justly distinguish by the name of dwarfs. The reason of their low stature is very obvious: these dwell in a most severe climate, amidst penury of food; the former in one much more favorable, abundant in provisions; circumstances that tend to prevent the degeneracy of the human frame. At the island of Oonalascha a dialect of the Eskimaux is in use, which was continued along the whole coast, from thence northward. I have before mentioned the fimilarity in the inftruments between the Americans of this fide of the coast and the Eskimaux, which is continued even to Greenland.

I cannot think the accounts well supported, that America received any part of its first inhabitants from Europe, prior to the sisteenth century. The Welsh sondly imagine that our country contributed, in 1170, to people the New World, by the adventure of Madoc, son of Owen Gwynedd, who, on the death of his father, sailed there, and colonized part of the country. All that is advanced in proof is, a quotation from one of our poets, which proves no more than that he had distinguished himself by sea and land. It is pretended that he made two voyages: that sailing

WELSH.

<sup>\*</sup> See Mr. Hearne's Discoveries.

<sup>†</sup> Given by Kampfer to Sir Hans Sloane, and now preserved in the British Museum.

t Hift. Japan. i. 67 .- Charlevoix, fastes Chronologiques, ann. 168.

#### NOT PEOPLED FROM EUROPE.

west, he left Ireland so far to the north, that he came to a land unknown, where he faw many strange things: that he returned home, and, making a report of the fruitfulness of the new-discovered country, prevaled on numbers of the Welsh of each fex to accompany him on a second voyage, from which he never returned. The favorers of this opinion affert, that feveral Welsh words, fuch as gwrando, to hearken or listen; the isle of Croeso or welcome; Cape Breton, from the name of our own island; gwynndwr, or the white water; and pengwin, or the bird with a white head; are to be found in the American language \*. I can lay little stress on this argument, because likeness of sound in a few words will not be deemed fufficient to establish the fact; especially if the meaning has been evidently perverted: for example, the whole Pinguin tribe have unfortunately not only black heads, but are not inhabitants of the northern hemifphere; the name was also bestowed on them by the Dutch, a Pinguedine, from their excessive fatness +: but the inventor of this, thinking to do honor to our country, inconfiderately caught at a word of European origin, and unheard of in the New World. It may be added, that the Welfh were never a naval people; that the age in which Madoc lived was peculiarly ignorant in navigation; and the most which they could have attempted must have been a mere coasting voyage.

NORWEGIANS.

The Norwegians put in for share of the glory, on grounds rather better than the Welsh. By their settlements in Iceland and in Greenland, they had arrived within so small a distance of the New World, that there is at lest a possibility of its having been touched at by a people so versed in maritime affairs, and so adventurous, as the antient Nortmans were. The proofs are much more numerous than those produced by the British historians; for the discovery is mentioned in several of the Icelandic manuscripts. The period was about the year 1002, when it was visited by one Biorn; and the discovery pursued to greater effect by Leif, the son of Eric, the discoverer of Greenland. It does not appear that they reached farther than Labrador; on which coast they met with Eskimaux, on whom they be-

\* Powel's Hift. Wales, 228, 229.

† Clus. Exot. 101.

flowed

the flowed the name of Skrælingues, or dwarfish people, from their small stature. They were armed with bows and arrows, and had leathern canoes, such as they have at present. All this is probable; nor should the tale of the German, called Turkil, one of the crew, invalidate the account. He was one day missing; but soon returned, leaping and singing with all the extravagant marks of joy a bon vivant could shew, on discovering the inebriating fruit of his country, the grape \*: Torfæus even says, that he returned in a state of intoxication †. To convince his commander, he brought several bunches, who from that circumstance named the country Vinland. I do not deny that North America produces the true vine ‡; but it is found in far lower latitudes than our adventurers could reach in the time employed in their voyage, which was comprehended in a very small space. I have no doubt of the discovery; but, as the land was never colonized, nor any advantages made of it, it may be fairly conjectured, that they reached no farther than the barren country of Labrador.

The continent which stocked America with the human race, poured in the brute creation through the same passage. Very sew quadrupeds continued in the peninsula of Kamtschatka. I can enumerate only twenty-sive which are inhabitants of land; for I must omit the marine animals, which had at all times power of changing their situation: all the rest persisted in their migration, and fixed their residence in the New World. Seventeen of the Kamtschadale quadrupeds are found in America: others are common only to Sibiria or Tartary, having, for unknown causes, entirely evacuated Kamtschatka, and divided themselves between America and the parts of Asia above cited. Multitudes again have deserted the Old World, even to an individual, and fixed their seats at distances most remote from the spot from which they took their departure; from mount Ararat, the resting-place of the ark, in a central part of the Old World, and excellently adapted for the dispersion of the animal creation to all its parts. We need not be startled at the vast journies many of the quadrupeds took

<sup>\*</sup> Mallet's Northern Antiq. Engl. ed. i. 284. † Hist. Vinlandiæ antiq. per Thorm.
Torfæum, p. 8. ‡ Glover's Account of Virginia, Phil. Trans. Abr. iii. 570.

#### QUADRUPEDS OF THE NEW WORLD.

to arrive at their present seats: Might not numbers of species have sound a convenient abode in the vast Alps of Asia, instead of wandering to the Cordilleras of Chili? or might not others have been contented with the boundless plains of Tartary, instead of travelling thousands of miles, to the extensive state of Pampas?—To endeavour to elucidate common difficulties is certainly a trouble worthy of the philosopher and of the divine; not to attempt it would be a criminal indolence, a neglect to

Vindicate the ways of God to man.

But there are multitudes of points beyond the human ability to explain, and yet are truths undeniable: the facts are indisputable, notwithstanding the causes are concealed. In such cases, faith must be called in to our relief. It would certainly be the height of folly to deny to that Being who broke open the fountains of the great deep to effect the deluge-and afterwards, to compel the difpersion of mankind to people the globe, directed the confusion of languages - powers inferior in their nature to these. After such wondrous proofs of Omnipotency, it will be absurd to deny the possibility of infusing instinct into the brute creation. Deus est anima brutorum; God himself is the soul of brutes: His pleasure must have determined their will, and directed several species, and even whole genera, by impulse irrefistible, to move by flow progression to their deftined regions. But for that, the Llama and the Pacos might still have inhabited the heights of Armenia and fome more neighboring Alps, instead of laboring to gain the distant Peruvian Andes; the whole genus of Armadillos, flow of foot, would never have absolutely quitted the torrid zone of the Old World for that of the New; and the whole tribe of Monkies would have gambolled together in the forests of India, instead of dividing their residence between the shades of Indostan and the deep forests of the Brasils. Lions and Tigers might have infested the hot parts of the New World, as the first do the deserts of Africa, and the last the provinces of Asia; or the Pantherine animals of South America might have remained additional scourges with the savage beasts of those antient continents. The Old World would have been overstocked with animals; the New

New remained an unanimated waste! or both have contained an equal portion of every beaft of the earth. Let it not be objected, that animals bred in a fouthern climate, after the descent of their parents from the ark, would be unable to bear the frost and snow of the rigorous north, before they reached South America, the place of their final destination. It must be confidered, that the migration must have been the work of ages; that in the course of their progress each generation grew hardened to the climate it had reached; and that after their arrival in America, they would again be gradually accustomed to warmer and warmer climates, in their removal from north to fouth, as they had in the reverse, or from fouth to north. Part of the Tigers still inhabit the eternal snows of Ararat, and multitudes of the very fame species live, but with exalted rage, beneath the Line, in the burning foil of Borneo or Sumatra; but neither Lions or Tigers ever migrated into the New World. A few of the first are found in India and Persia, but they are found in numbers only in Africa. The Tiger extends as far north as western Tartary, in lat. 40. 50, but never has reached Africa. I shall close this account with observing, that it could be from no other part of the globe except Afia, from whence the New World could receive the animal creation.

The late voyage of the illustrious Cook has reduced the probable conjectures of philosophers into certainty. He has proved that the limits of the Old and New World approach within thirteen leagues of each other. We know that the intervening streights are frequently frozen up; and we have great reason to suppose, that the two continents might have been once united, even as low as the Aleutian islands, or lat. 52. 30. Thus are discovered two means of passage from Asia to America; the last in a climate not more rigorous than that which several animals might very well endure, and yet afterwards proceed gradually to the extreme of heat.

In fact, every other fystem of the population of the New World is now overthrown. The conjectures of the learned, respecting the vicinity of the Old and New, are now, by the discoveries of our great navigator, lost in conviction. The strained systems of divines, laudably indeed exerted in elucidating Sacred Writ, appear to have been ill-sounded; but, in the place of imaginary hypotheses, the real place of migration is uncontrovertibly

trovertibly pointed out. Some (from a passage in Plato) have extended over the Atlantic, from the streights of Gibraltar to the coast of North and South America, an island equal in size to the continents of Asia and Africa; over which (fay they) had passed, as over a bridge, from the latter, men and animals; wool-headed Negroes, and Lions and Tigers\*, none of which ever existed in the New World. They affert that a mighty fea arose, and in one day and night engulphed this stupendous tract, and with it every being which had not completed its migration into America. The whole Negro race, and almost every Quadruped, now inhabitants of Africa, perished in this critical day. Four only are to be found at present in America; and of these only one, the Bear +, in South America. Not a fingle custom, common to the natives of Africa and America, to evince a common origin. Not a negro was ever feen in America but what had been imported out of the Old World. Of the Quadrupeds of Africa four only, viz. the Bear, Stag, Fox, and Weefel, can certainly be pronounced to be found on each continent. The Stag t, Fox, and Weefel, have made no farther progress in Africa than the north. I suspect, befides, that the Stag hath not advanced farther fouth in America than Mexico; and that the Fox and Weefel have not yet travelled beyond the fouthern limits of North America. In Africa and South America the Bear is very local, being met with only in the north of the first, and on the Andes in the last. Some cause unknown arrested its progress in Africa, and impelled the migration of a few into the Chilian Alps, and induced them to leave unoccupied the vast tract from North America

<sup>\*</sup> Catcott on the Deluge, edit. 2d. p. 139, 15, &c.

<sup>†</sup> On the reasoning of Mr. Zimmerman (Zool. Geogr. 476), and the opinion of Mr. Erz-leben (Syst. Regn. An. 508), I give up my notion of the Panther (Hist. Quad. No 153), being a native of South America. It is most probable, that the skin which I saw at a surrier's shop, which was said to have been brought from the Brasils, had originally been carried there from the western coast of Africa, where the Portuguese have considerable settlements, and a great slave trade for their American colonies, and where those animals abound.

<sup>†</sup> Shaw's Travels, 243. Quere? whether exactly the same with the European. I omit the Wolf in this edition as an animal of Africa. The Wolf of Senegal, and of the Cape of Good Hope, being no other than Hyanas, misnamed by the Europeans: and the little Wolf of Egypt is only the Jackal.

to the lofty Cordilleras.—My promised Table of Quadrupeds will at once give a view of those which inhabit North America, and are either peculiar to it, or are met with in other countries. It certainly will point out the course they have taken in their migration; and, in case missomers are avoided, will reduce to the single continent of Asia the original country from whence they sprung. Men of the first abilities, and first in learning, who have neglected the study of natural history, will give Lions and Tigers to America, missed by the ignorance of travellers, who mistake the Puma of this Work for the first, and the spotted wild beasts, allied to the Pantherine race, for the second.

#### TABLE OF QUADRUPEDS.

HOOFED.

			The purpose of the state of the
GENUS.  I. Ox.	Bison,	N° 6.	In parts of Lithuania, and To the west of Canada, and
in Gutand.  the weltern parts  teat desvices  to Charlevile.  to 2	interior noi	nom	A variety in the interior To the north of Hudson's parts of Guinea, and the fouth of Africa.  Bay, from Churchil river to lat. 73, and among the Christinaux, and in New Mexico.
II. SHEEP.	Wild,	D.	Sardinia. Corfica. Crete.  North of India. Persian Alps. About the Onon and Argun, in Sibiria.  Mongalia, to lat. 60. East of the Lena, and quite to Kamischatka.
III. DEER.	Moofe,	N° 42.	The second secon

### TABLE OF QUADRUPEDS.

GENUS.	HIST. QUADR.	OLD WORLD.	NEW WORLD.
0 2 1 0 3.	HIST. COMPANY	64. Russia. Sibiria, as low	va Scotia. New England;
1711913 3	es. Its continue	as lat. 53. As far east as	and near the northern
30100 213		Lake Baikal; and in the	part of the river Obio.
ALC: NO.	H VSEA IN NORTH BURN	north of China to the	a titus balance etch
-0°.000-0	CONTROL OF THE SECOND	north of Corea. lat. 45*.	
-10000170	D -:- NTO 40	Lapland. Norway. Samoi-	Hudson's Bay. Northern
has and	Rein, 19 43.	edea. Along the Artic	parts of Canada. La-
3ft 32 E	HE ALLY SPECIAL	coasts, to Kamtschatka.	
er baile	TENEST TENE BOTH	In the Urallian moun-	THE REAL PROPERTY OF THE PARTY
		tains to Kungur, in lat.	
		57. 10. About Lake	
	2000年100		本人。(4)(4)(4)(4)(4)(4)(4)(4)(4)(4)(4)(4)(4)(
	COME SHEET V	Baikal. Spitzbergen.	TO APPLICATE AND STATES
	O. NTO	Greenland.	From Canada over all
20 23 0 W	Stag, IN 45.	Norway, and most part of	monte of North Amorica
of Canada, and	is, and House decreed		parts of North America.  Mexico.
	en works - de likeson	the north of Asia. China.	IVIEXTCO.
	and the Age AE	Barbary. E.	The same formats
	Virginian, N° 46.	Lone Memols	From the provinces fouth
	- rions	新·西姆 · 连四届 · 加	of Canada to Florida.
th of Hudgen's	on officer	and and windings A . O M	Perhaps in Guiana.
Churchil river	Mexican Roe, }	The same of the sa	Interior north-western parts
	N° 52.	Color to street	of America? Mexico.
gooms bus of	Roe, N° 51.	Norway. Sweden. Most	According to Charlevoix,
ni bus gaself	May Dell	part of Europe, except	in Canada?
.000	1 2 2 A	Russia. Scotland.	
ni baudi ed e	Creste, Sulpected 1	b. 35- Language Cooper.	il, butter, and could be
		NAME OF THIS !	

DIGITATED.

DIV. I.

IV. Doc.

Wolf, No 137. From the Artic circle to From Hudfon's Bay to the the most fouthern part of Europe. In Afia, from the

most fouthern parts of North America.

\* Or lat. 42, according to Mr. Zimmerman's new Map.

GENUS.	HIST. QUADR	OLDW			WORLD.
nd perhaps other			to Persia.	ispunoty	
North America.			a. All parts		
o America's allo	olar The fant	of Africa.	Nº 175. Will	Polar,	VI. Bear.
rs Medfor's Ray	Arttic Fox, Nº1	40. Within the v	whole Artic H	Iudson's Ba	y. The isles
rador	and Las	circle. Icel	land. Spitz-	in the hig	h latitudes on
of North American	Ja- In all part	bergen. Gre	enland. Fin-	the wester	n side of Ame-
	an. rica.	mark. Nor	th of Sibiria.	rica.	
orth-well of	con To the	Kamtschatke	a, and itsifles.		
Bey, and on the	Common Fox,	7 In all parts of	Europe, and Fi	rom Hudse	n's Bay, cross
fide of America.	N° 139	S the cold ar	nd temperate	the contin	ent to the Fox
ootka Sound, On		parts of A		Isles. La	brador. New-
s of Para t.	the she shall	chatka, and	l its furthest	foundland	. Canada. Not
h as the Copper	md. As far nor	ifles. Icela	ind. E.	further fo	uth: a variety
sa se duct ba	nty- Rivery	orth of Sibirac Att	10 126 9 M	only, the	Brandt Fox,
berween iske	vitamon   N	arka.	do do	in Pensyla	vania.
d Separation, Og	Grey, No 1	42.	_ F	rom New	England to the
				fouthern	end of North
	of Marke			America.	
	Silvery, No	[43.]	_ III	n Louisiana	Sepen East
V. CAT.			_ F	From Canad	da to Florida;
	Maria.	The same of the	said of said	thence th	rough Mexico,
the South Sea	of tokus		Carlo Balance	quite to	Quito in Peru.
	Lynx, N°	70. Forests of t	he north of F	From Cana	da, over most
		Europe, and			Vorth America.
	In Labred	fouth. Spa	in. North of		
		Aga, and t			
	A CONTRACTOR OF THE CONTRACTOR	in the nort			
	Bay Lynx, Nº			n the pro	vince of New
	As far no	and the same of th	181 1	York.	VIII. Orosayus
	and fire				Mountain,
	Bradils a			Same of	objects they be the

<sup>\*</sup> As I have been affured by Doctor Pallas, fince the publication of my History of Quadrupeds.

# TABLE OF QUADRUPEDS.

OFNUS	HIST. OI	TADRA	OLD WORLD	NEW WORLD.
GEN 03.			or similar side.	Carolina, and perhaps other
	1410011111111	otupys (I)	Kewithatha K	parts of North America.
VI. BEAR.	Polar,	Nº 175.	Within the whole polar	
The DEAK.	i olar,	13	circle of Europe and	
2011 26 1 de	in the hi	with the	Afia.	and Labrador.
en fide of Any.		Nº 174	Jeso Masima, north of Ja-	In all parts of North Ame-
-28028 10 Divis 461	, and	Siènta	pan; perhaps in Japan.	rica.
	Brown,		In most parts of Europe,	
9 115			north and fouth. The	Hudson's Bay, and on the
near to the Fix			fame in Asia, even as far	
TO LORIS OF SHORE	5 -33		as Arabia. Barbary *.	
Court Mar			Ceylon. Kamtschatka.	the Andes of Peru +.
10 %1 channed .	Wolverene		North of Norway. Lapland.	As far north as the Copper
Brandt Fox,		176. 5	North of Sibiria. Kamtf-	
Carl Thomas	Constant		chatka.	country between lake
And and American Till			51.7	Huron and Superior. On
draw to bee	Township of			the western side of North
divest to men	and the self control	W- 15		America.
	Raccoon,	N° 178.	manage beauty	From New England to Flo-
de to Florida			W 1601 V	rida. Mexico. Isles of
and the state of the state of	Saltra (tr			Maria, near Cape Cori-
water sheet of	or enium			entes, in the South Sea.
VII. BADGER.	Feature Car	Nº 179.	In the fouth of Norway,	In the neighborhood of
VII. BADOLA	ho soned		and all the more fouth-	Hudson's Bay. Terra de
			ern parts of Europe. In	Labrador, and as low as
			the temperate parts of	Pensylvania.
			Asia, as far as China	
	en sets al		eastward. E.	any a year
VIII. OPOSSUM.	Virginian,	N° 181.	(Solitoria) (Solitoria)	As far north as Canada,
- Mountain	1		Eyene the Arm than to	and from thence to the
			The talk her part and	Brafils and Peru.
	The play has a		In the contract of the A	IX. WEESEL.

\* Shaw's Travels, 249. + Condamine's Travels, 82 .- Ulloa's Voyage, 1. 461.

CENUS.	HIST. Q	UADR.	OLD WORLD.	NEW WORLD.
IX. WEESEL.			Most parts of Europe. Si-	
North America.	to flow	nence to	biria. Kamtschatka. Bar-	
		No.	bary. E.	Carolina.
Maria Ray to Loss	Stoat,	Nº 193.	All the northern parts of	Hudson's Bay, and as low
	Hans	al wha	Europe and Afia; and as	
		alt sec	far as Kamtschatka and	
			the Kuril isles. E.	
Wate Barro Lan	Pine Mar	tin, 7	North of Europe. Rare in	Northern parts of North
		1° 200.	France. Only in the west	
- di do esta d'esta	MA reigns?		of Sibiria. In China. E.	CONTRACTOR OF THE PROPERTY OF
	Pekan,	N° 204.		Hudson's Bay. Canada.
	Vison,	N° 205.		Canada.
	Sable,	N° 201.	Sibiria. Kamtschatka. Kuril	Canada.
e illere.	market.		ifles.	THE RESERVE
	Fisher,	N° 202.		Hudson's Bay. New Eng-
tage.	The Wall	. Care	- transfer M	land. Pensylvania.
	Striated,	N° 217.	and the same of th	Pensylvania to Louisiana.
	Skunk,	N° 218.		From Hudson's Bay to Peru.
X. OTTER.	Common	N° 226.	Northern Europe and Asia.	From Hudson's Bay to Loui-
			Kamtschatka. E.	fiana.
	Leffer,	N° 228.	About the banks of the	
	1.00		Yaik. Poland. Lithuania.	rolina.
	FIEL STATE		Finland.	-0.40
	Sea,	N° 230.	Kamtschatka. Kuril isles.	Western coasts of America.
	age 3 com. A		and the second	
			DIV. II.	
	Supplies .			
XI. HARE.	Varying,	N° 242.	Scandinavia. Russia. Sibi-	Hudson's Bay. About
			ria. Kamtschatka. Green-	Cook's river.
			land. E.	Town TL. ICe. 2. Day to the
	American,	N° 243.	(manual training)	From Hudson's Bay to the
			III AID DESCRIPTION	extremity of North Ame-

rica.

Alpine

### TABLE OF QUADRUPEDS.

			OLD WORLD	NEW WORKS
GENUS.			OLD WORLD.	NEW WORLD.
Egg. Wergfand-	Alpine,	N 240.	From the Altaic chain to	
as shed as al.	laset			west of North America.
TO DECLAR	dato d		Kamtschatka.	
XII. BEAVER.	Castor,	N° 251.	Scandinavia. About the	
han kashvala	7A 05 1		Jenesei and Kondu. In	isiana.
	3660		Casan, and about the	
		, .	Yaik.	<b>一种政治</b>
Strold to street	Musk,	N° 252.	Alpho - Army - 1 and	From Hudson's Bay to Lou-
ede us stime in	Santa 1	April 1 day	<b>计图数</b> 公司公司 (2018)	isiana.
XIII. Porcu-	Canada,	N° 257.	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	From Hudson's Bay to Vir-
PINE.	a salara		The second of the second	ginia.
XIV. MARMOT.	Quebec,	N° 259.	The state of the s	Canada.
	Maryland		28 No 120 MM	From Pensylvania to the
			San Sales Sales	Bahama isles.
100 mills 100 mills	Hoary,	N° 261.		North of North America.
	Tail-less,	N° 265.	_	Hudson's Bay.
	Earless,	N° 263.	Bohemia. Austria. Hunga-	
and an activity			ry. From the Occa over	
And the second second			the temperate parts of	
			Sibiria. About Jakutz.	
			Kamtschatka.	AND THE RESERVE AND ADDRESS OF THE PARTY OF
XV. SQUIRREL.	Hudlon	N° 274.	The state of the s	Hudson's Bay. Labrador.
ZEV. DQUIRRED.	Grey,	N° 272.		New England to Peru and
	Gicy,	14 2/2.	A STATE OF THE PARTY OF THE PAR	Chili.
Maratha 20 com	Black,	Nooro		New England to Mexico.
				From the fouthern part of
	Flying,	N° 283.	II NATED TO SEE	Hudson's Bay to Mexico.
	TTJ-1	TATO - O .		Virginia.
	Hooded,			ruginu.
	Severn Ri	(		Hudson's Bay.
WILD		N° 282.5	0:7: 1	
X.VI.DORMOUSE			Sibiria, as high as lat. 65.	
	English?	N° 289.	Sweden, and all Europe	
	- Acti		fouth. E. Carolina?	
				XVII. RAT.

GENUS.			OLD WORLD.	
XVII. RAT.	Black,	N° 297.	All Europe. Many of the	
ANTENNA PARAME	May 14		South Sea islands. E.	
sained losse	American,	N° 299.	Mongolia.	North America.
THE REPORT OF STREET	Water,	N° 300.	From Lapland to the fouth	From Canada to Carolina.
bet Application with			of Europe. From Peters-	
Annual State			burgh to Kamtschatka,	
ar to the			and as low as the Caf-	Rebben
animality in the	tile Bell	a Atuably	pian sea, and Persia. E.	Great,
	Moufe,	N° 301.	Universal. E.	Among the rocks, with the
nitral an act par	manual Phone		W 381. White Sear Linker	Black Rat.
The saline of the sales	Field.	N° 302.	All Europe. Not beyond	Hudson's Bay. New York.
	Inn.2	- 3	the Urallian chain. E.	Sologid
Anna and	Virginian,	Nº 307.		Virginia.
SHE SHEEKS STATE	Labrador,			Hudson's Bay. Labrador.
	Hudson's,			Same places.
			Sweden. All temperate Ruf-	
	TVICACION,	1, 322.	sia. In Sibiria only to	
	A MARINE TO		the Irtisch. E.	
	Llava tail	2 2 2		
and the state of	Hare-taile	To 2000 }	Sibiria.	Hudson's Bay.
Finging : Philar				TT IA I B
XVIII. SHREW	Fætid,	N° 341.	Europe. Sibiria. Kamtschat-	Hudson's Bay. Carolina.
	malalata.		ka. E.	The state of the s
XIX. Mole.			The other was the said	New York. Interior parts
	1	N° 352.)	390-3 His of St. Mann	of Hudson's Bay.
to your sales	Radiated,	, N° 351	1000	New York.
	Brown,	N° 353		New York.
			DIV. III.	
				the sail of the sail
XX. WALRUS.	Aretic,	N° 373	. Spitzbergen. Greenland. No.	- Hudson's Bay. Gulph of
	Cont.	Charles	va Zemlja. The coast o	f St. Laurence. On the
	a Section 1.0		the Frozen Sea. And on the	western side of America,
	a to the state of		Afiatic fide, to the fouth	as low as lat. 58. 42.
				0

## TABLE OF QUADRUPEDS.

GENUS.	HIST.	LUADR.	OLD WORLD.	
	Mores I		of Behring's streights, as	MVIII. Skar Bleck, S.
and and	Mount	.Ae	low as lat. 62. 50.	
XXI. SEAL.	Common,	N° 372.	All the European and north-	Northern leas of America.
AND CONTRACT	and then t		ern Afiatic seas, even to	CONTRACTOR OF THE PARTY OF THE
A STATE OF THE STA		- Charles	the farthest north. Kamts-	
	D 11	To 0	chatka. E.	
	Rubbon,	N° 380.	The Kuril isles.	Man of Nouth America
	Great,	N° 382.	Greenland and Kamtschatka.	West of Ivorin America.
adu ducy axizon	T contine	TO -0-	E. White Sea. Iceland. Spitz-	There can be no doubt
	Leporine,	IN 381.	bergen. Kamtschatka.	
# 10 MA - 10	Hooded,	N° 285.	vergen. Ramijenana.	Seal is found on the
			Spitzbergen. Greenland. Ice-	
	riarp,	14 303.	land. White Sea. Kamtf-	
			chatka.	Markett Co. A. L.
Sandard St.	Rough,	N° 283.	epmon lik selemble or 14	antenida
- Marie Charles	Urfine,	Nº 387.	Kamtschatka. New Zealand.	West of America, and from
		0	E digra ada bereda.	the isle of Gallipagos to
			the language for 18 at	New Georgia.
. 49	Leonine,	N° 389.	Kamtschatka.	West of America. Streights
siderally as	1. (Sept. 34	-tuditim	N 241 Engla Chila K	of Magellan. Statenland.
The American		100 miles	la, E	Falkland isles.
XXII.MANATI.	Whale-tai	led, 7	Behring's isle, and near the	West of America.
e't Nat.	N N	° 390. 5	isle of St. Mauritius.	A SEE
	Sea Ape,	P. 392.	- THE '19	West of America.
			N* 353	Trown Brown

### DIV. IV.

XXIII. BAT.	New York, Nº 403.	(E) (C) (S) (S) (E) (E) (S) (C) (S) (S) (S) (S) (S) (S) (S) (S) (S) (S	New York.
teres On the	Long haired, N° 83.}	of Parking to	Carolina.
	Noctule, Nº 407.		Hudson's Bay.

Some

ICY SEA.

Some years ago a very important discovery was made, not very remote Journey to THE from the place where Captain Cook was obliged to defift from his northern voyage. Mr. Samuel Hearne, in the service of the Hudson's Bay Company, by direction of the governors, began a journey, on December 7th 1770, towards the northern limits of America. He went attended only by Indians, with whom he had been long acquainted. He fet out from Prince of Wales fort, 58. 55. 30, north lat. west long. from London 95. 15. He for a long space took a north-western course, crossed Me. nischtic lake, in lat. 61, a water thirty-five miles in breadth, full of fine islands, and joining with the river Namassy. He passed over Wiethen and Cassed lakes, and from the last kept due west. In April he reached Thleweyaza Yeth, a small lake in long. 19, west from Churchil fort, lat. 61. 30, near which he made some stay to build canoes, now requifite against the breaking up of the frost. From that lake he began a course due north, and crossed a chain of lakes, of which Titumeg is one. In lat. 64. he went over Peshew lake; after that, the great lake Cogeed, out of which issues a river pointing north-east, which is supposed to fall into Baffin's Bay. About the middle of June he croffed the great river Conge-cathawba-chaga, in lat. 68. 46; and from Churchil river west long. 24. 2. About those parts are the Stoney Mountains, extending in longitude from 116 to 122 from London: craggy, and of a tremendous aspect. On July 7th he arrived at Buffalo lake, in lat. 69. 30: here he first faw the Musk Buffalo. Near the north end is Grizzle Bear-bill, in about lat. 70, fo called from its being the haunt of numbers of those animals.

On July 13th he reached the banks of Copper River, which runs due Copper River. north into the Icy Sea. About the fouth end is much wood, and very high hills. Its current is very rapid, and its channel choaked with shoals, and croffed with stoney ridges, which form three great cataracts. Its banks are high, the breadth about a hundred and eighty yards; but in fome places it expands into the form of a lake. In an island of the river unfortunately happened to be a fummer encampment of five tents of Eskimaun. The Indians attendant on Mr. Hearne grew furious at the fight of them. It is their firm opinion, that these savages are magicians,

ESKIMAUX.

00

and that all the evils they experience refult from their incantations. Mr. Hearne in vain folicited his Indians to forbear injuring these poor people. They, with their usual cowardice, deferred the attack till night, when they furprised and murdered every one, to the number of between twenty and thirty. A young woman made her escape, and embraced Mr. Hearne's feet; but she was pursued by a barbarian, and transfixed to the ground. He obferved in their tents (which were made of deer-skins with the hair on) copper vessels, and whale-bone, and the skins of Seals, wooden troughs, and kettles made of a foft stone (by his description a lapis ollaris), and dishes and spoons formed from the thick horns of the Buffalo. Their arms are spears, darts, and bows and arrows; the last pointed with stone or copper, but most rudely made, for want of proper tools. In their dress they much resemble the Eskimaux of Hudson's Bay, but the tails of their jackets are shorter; neither do the women, like them, stiffen out the tops of their boots. Their canoes differ in not having long projecting prows, but in other respects are of the same construction. In most circumstances these people resemble those of the Bay; and differ materially only in one, for the men in these pull out by the roots all the hair of their heads.— Mr. Hearne first saw the sea on July 16, at the distance of eight miles. He went to the mouth of the river (in lat. 72; west long. from London 121) which he found full of shoals and falls, and inaccessible to the tide, which feemed to flow twelve or fourteen feet. The fea was at this time full of ice, and on many pieces he faw Seals. The land trended both to the east and to the west, and the sea was full of islands. The land about Copper river, for the space of nine or ten miles to the sea, consisted of sine marshes, filled in many places with tall Willow, but no fort of berry-bearing shrubs. There are no woods within thirty miles of the mouth of Copper river; and those which then appear, consist of ill-shaped and stunted Pines.

DOG-RIBBED INDIANS. The people who live nearest to this river, are the Copper-mine Indians, and the Plat-cotes de Chiens, or Dog-ribbed Indians; these have no direct commerce with Hudson's Bay, but sell their furs to the more southern Indians, who come for them, and bring them down to the settlements. The Dog-ribbed Indians still make their knives of stones and bones, and head

head their arrows with slate. The Copper Indians have abundance of native copper in their country; they make with it ice-chissels and arrowheads. The mine is not known; but I find that an Indian chief, who had many years ago communication with a Mr. Frost, one of the Company's servants, says, that the copper was struck off a rock with sharp stones; and that it lay in certain islands far to the northward, where was no night during summer \*.

Mr. Hearne set out on his return the 22d of July. He took, in some places, a route different from what he did in going, and got to the settlements in June 1772. I have perused the journal, and had frequent conversation with Mr. Hearne. I took the liberty to question him about the waters he had crossed during winter upon the ice; and whether they might not have been at that time obstructed streights, a passage to the Pacific Ocean? He assured me, that he could make no mistake: that he passed over many of them in canoes during the summer, and that the others had large rivers running out of them, almost every one to the west: that the Indians, who crossed them annually, in their way to the north to trade for surs, were exceedingly well acquainted with them, and knew them to be fresh-water lakes; and in particular used to fish in them for Pikes, fish notoriously known never to frequent salt-water.

The Quadrupeds observed by Mr. Hearne in this high latitude were the Musk Ox, Rein Deer, Grizzle Bears, Polar Bears, White Wolves, Arctic Foxes, Woolverines, Ermines, Common Squirrels, Striped Squirrels, Mice of different kinds; and on the ice in the mouth of Copper River, Seals. The Eskimaux had with them, Dogs.

I must now take a blind unguided course along the Icy Sea. The charts give the land a turn to the south, in lat. 81. long. 22 from London. This is the most northern extremity of the country called Greenland, if it reaches so far; but, beyond the discovery by Mr. Hearne, in lat. 72, the northern limits given in our charts appear to be merely conjectural. To the south, on the eastern coast, in 1670, was seen land in lat. 79.

GREENLAND.

Dobbs's Account of Hudson's Bay, &c. 47.

002

Another

Another part, in lat. 77. 30, called in the maps the land of Edam, was feen in 1655. The inlet named Gael-bamkes, in lat. 75, was discovered in 1664. A headland was observed, in 1665, a degree further south. In a map of North and South America, published by Mr. Sayer in 1775, is a small isle called Bontekol, seated off the coast in lat. 73. 30, the date of the discovery is 1665: and in 1607 our celebrated Hudson discovered what he named Hold with Hope, in lat. 73\*. Excepting the last, the rest of the attempts were made by the Danes, for the recovery of Old Greenland. Gael-bamkes alone continues known to navigators, and is annually frequented by European Whale-fishers, who extend their business even to this coast. It is represented as a great streight, twenty-five leagues wide, communicating with Baffin's Bay. A species of Whale, frequent in Davis's Streights, and not found on this fide of the coasts, is often feen here harpooned with the stone weapons of the inhabitants of the opposite country; which fish must have escaped through this passage +. The land to the north of Gael-bamkes is level, and not very high; and within five or fix leagues from it are foundings. That to the fouth is very lofty, and rifes into peaks like that of Spitzbergen; and the fea opposite to it is fathomless ‡.

JOHN MAYEN'S

In lat. 71. long. 8. west from London, is John Mayen's island, formerly much frequented by Whale-fishers; but those animals have now left the neighboring fea. The north end rifes into a prodigious mountain called Beerenberg, or the Bears, from its being the haunt of numbers; but it is fo steep as to be inaccessible to all human creatures.

The height of the mountain on Mayen's ise is so great, that it may be feen at the distance of thirty leagues. Many parts of the coast are from twenty to thirty fathoms high. The sea at the north end is often frozen ten miles from the shore; and on one part of the isle are three stupendous icebergs, or mountains of ice. Off the north-east end are alternate calms, and fudden gusts of wind like whirlwinds, which make navigators shun the approaching it from that quarter.

The bottom of the fea round the isle is rocky and uneven, and of very

Purchas, iii. 568. † Voyages par de Pages, ii. 222.

I Same.

JOHN MAYEN'S ISLAND.

various



various depths. There are places where there is only fix or feven fathom water, with a black fand, possibly vulcanic; and at a small distance is water of three hundred fathoms. In other parts the bottom is rocky, and most unsit for anchorage\*: a few creeks, pervious by dissicult and narrow inlets, are capable of affording shelter, in this horrible spot, to a few shallops; but ships must anchor without, and then with the most sedulous circumspection.

The ships destined for the Greenland whale-sishery often visit this island first, for the sake of the seals, which are here in great numbers upon the ice. They are killed for the sake of the oil, which is extracted from their blubber; and for their skins, which, after being salted, are kept in casks, and used in England for making of boots and shoes. Our ships leave their ports in February or March, and arrive off the island in March or April, according to the time of their departure; and if they arrive in the first month, they generally find the sea sull of ice; but that depends on the winds, for when they blow from certain points the ice disappears and leaves the water open. The ships usually continue in this sea till the beginning of May, at which time they stretch away to the east, and apply themselves to the whale-sishery in about latitude 79, and even to that of 81.

Opposite to Iceland begins the once-inhabited part of Old Greenland. A very deep streight opens a little opposite to Snæfelnas, and runs across Greenland, near Jacob's Haven, into Davis's Streights, so as quite to insulate the country: it is now almost entirely closed with ice, and annually fills the sea with the greatest icebergs, which are forced out of it. A little to the north of the eastern entrance are two mountains of a stupendous height, called Blaaserk and Huitserk, cased in perpetual ice. The whole country, to the southern end, consists of similar mountains: a sew exhibit a stoney surface; but the greater part are genuine glacieres, shooting into losty peaks, or rugged summits: yet such a country as this became the settlement of numbers of Norwegians during several centuries. The valiant Eric Raude, or the Red, having committed a murder in his own

OLD GREEN-LAND.

Peopled by Norwegians.

\* Northern Pilot, 61, 62. Marten's Spitzbergen, 186.

country

country (a common cause for seeking adventures, with the heroes of Greece as well as Scandinavia) fled here in the tenth century. Numbers of his countrymen followed him. Leif, his son, became a convert to Christianity. Religion flourished here: a bishoprick was established, and monasteries sounded. The cathedral was at Gardar, a little to the south of the polar circle.

VOYAGE OF THE ZENI.

In Hackluyt\* is a relation of the voyage of the two Zeni (noble Venetians) who in 1380 visited this country, and give evidence to the existence of the convent, and a church dedicated to St. Thomas, possessed by friers preachers. It appears to have been built near a vulcano, and the materials were lava, cemented with a fort of pulvis puteolanus, which is known to be a vulcanic attendant. A spring of boiling water was near the house, and was conveyed into it for all their culinary uses. I am not averse to giving credit to this account; there being no reason to deny the former existence of burning mountains, when such numbers are to be found in the neighboring Iceland; and at this very time there is a sountain of hot water in the isle of Onortok, not remote from Cape Farewell †. A strange phraseology runs through the voyage of these two brethren, and perhaps some romance; but so much truth is every where evident, that I hesitate not to credit the authenticity.

Torfæus enumerates seventeen bishops who presided over the diocese. The last presate was appointed in 1408. The black death had almost depopulated the country not long before that period. Probably the surviving inhabitants sell victims to want, or were extirpated by the natives: for, after that year, we hear no more of them. It certainly had been well inhabited: the ruins of houses and churches evince its former state. In the sisteenth century the kings of Denmark attempted to discover whether any of the antient race remained; but all in vain: the adventurers were driven off the coast by the ice with which it was blocked up, which remains an invincible obstacle to re-settle the eastern coast, even were there the lest temptation. All is a dreadful tract from lat. 81 to Staten Hook or Cape Farewell, its southern extremity, on an isse off that point, in lat. 59;

<sup>\*</sup> Vol. iii. 123: and Purchas, iii. 610:

FROBISHER'S STREIGHTS.

on both fides deeply indented with bays, bounded by icy promontories. Many of these bays had been parts of pervious streights, which had divided the country into several islands; but are now totally obstructed with ice. Besides that I before mentioned, was one in lat. 63, called Bar-sund; and that in 62. 50, immortalized by the name of our celebrated failor Frobisher, who penetrated into it fixty leagues, in his first voyage in 1576, in his fearch for a passage to Cathaya; but imagined that Asia bounded the right fide, and America the left\*. He met with inhabitants, defcribes them and their œconomy, and is particular about their great dogs, and their use of them in drawing their sledges. In his second voyage he found a Narwhal dead on the shore, and has given a figure of it. 'This horn,' fays he, 'is to be feene and referved as a jewel by the Queens Majesties commandemet, in her wardrop of robes †.' - The original map of his voyages is a fingular sketch of erroneous supposition. He makes his streights reach to the Icy Sea, opposite to what he calls Cathaya, just to the north of what is made to resemble the new-discovered streights of Behring; which, in the map, are called those of Anian; and accidentally gives them a tolerably just form t. Those of Anian are equally fabulous with those of de Fuca, but of prior invention; and, like them, were fayed to have been a passage from the South to the North fea ||. Queen Elizabeth bestowed on his discoveries the name of Meta Incognita.

Greenland was resettled with Norwegians in 1721, by the zeal of the Reverend Mr. Hans Egede, the Artic apostle §. He continued, till 1735, preaching the Gospel to the poor natives; and had not only the happiness

New Green-

<sup>\*</sup> A true Discourse of the late Voyages of Discoverie for finding a Passage to Cathaya by the north-west, under the Conduct of Martin Frobisher, General. Printed by Henry Bynnyman, 1578. First Voyage, p. 48.

<sup>+</sup> The Same, Second Voyage, p. 19. 1 In the same book.

<sup>||</sup> See an account of these imaginary streights in Drage's Voy. to Hudson's Streights, vol. ii. 68.

<sup>§</sup> Crantz, i. 279. 285.

## OLD GREENLAND.

of feeing his labors bleffed with effect, but his example followed by a numerous fet of missionaries, who have formed (on the western side only) many settlements, which sourish even to this day. Mr. Egede returned to Denmark, sounded a seminary for students in the Greenland language, from which missionaries were to be drawn; and sinished his pious life in 1754.

At Cape Farewell begins the vast opening between Greenland and Terra de Labrador, which leads to Hudson's Bay. Between the west side of Greenland and certain vast islands, are Davis's Streights, which lead to Baffin's Bay. These islands in different maps bear different names, and in one are even consolidated; so little are these parts known\*.

To describe Greenland, would be to ring changes on ice, and snow, and lofty mountains (fome, according to Mr. Crantz, a thousand fathoms high) rifing into broken crags or fharp spires, or vallies with no other garniture than moss and some moor-grass; and in some parts are long flat mountains, clad with perpetual ice and fnow. Where the birds, by their dung, have formed a little foil, some plants are found. Mr. Crantz + enumerates about twenty-four species, besides the cryptogamious kinds. Egede observed, in lat. 60 or 61, fmall Junipers, Willows, and Birch; the last two or three yards high, and as thick as a man's leg t; an amazing tree for this country. Davis also saw some low Birch and Willows as high as about lat. 65 §. Nature here suffers the reverse of melioration: the glacieres constantly gain on the vallies, and destroy all hopes of improvement. That amazing glaciere, the Ice Blinck or Ice Glance, on the western coast, is admirably described by Mr. Crantz. I must refer to him for the account, after faying, that it is a stupendous aggregate at the mouth of an inlet, and of an amazing height; the brilliancy of which appears like a glory to the navigators at many leagues distance. It forms, beneath, a feries of most magnificent arches, extending eight leagues in length, and two in breadth; through these are carried, at the ebb of tide, great frag-

TREES.

ICE-BLINCK.

\* Collate Mr. Middleton's map, and others. † Vol. i. 60. ‡ Hist. Greenl. § Hackluyt. iii. 101.

ments

ments of ice, which have fallen from various icebergs, and prove one fupply to the ocean of its floating ice \*. The streights, now obstructed to navigation, are supposed to be open at bottom, by arches similar to those spoken of; for an immense quantity of ice is annually discharged from their mouths +.

I have mentioned the islands of ice at p. cxxxiv; for those of Spitzbergen have every thing in common with those of Greenland. Perhaps the colors in the last may be more brilliant; the green being as high as that of the emerald, the blue equal to that of the fapphir; the first, Mr. Egede attributes to the congelation of fresh, the latter to that of saltwater t. Here are frequent instances of the freezing of the sea-water. The frost often forms a pavement of ice from island to island, and in the confined inlets §.

The tides rife at the fouth of this country three fathoms, in lat. 65; on the west side two, or in spring-tides three; at Disco, about lat, 69, only one; further north it finks even to one foot. In great fpringtides, especially in winter, is this strange phænomenon: springs of fresh-water are forced up on the shores in places where they were before unknown |.

During the long day of the short summer is considerable heat. The AURORA BOREAlong winter is a little cheared by the Aurora Borealis, which appears and radiates with unufual brilliancy and velocity in the fpring, about the time of the new moon. Fogs give a gloom to the summer, and frostsmoke often adds horror to the winter. It rises out of the opening of the ice in the sea, and peels off the very skin from those who venture to approach it. The effect of the frost is very violent on the human body; but less so than in the north-east of Sibiria, where at times it is fatal to ftir abroad, even when protected with every guard of cloathing ¶.

The Greenlanders fastidiously style themselves Innuit, i. e. men, as if they

\* Crantz, i. 21 to 24. \$ Egede, 550 + Same, 19. § Crantz, i. 43. | Same, 41. ¶ Voyage en Siberie, i. 381.

Pp were TIDES.

tight?

were the standard of the human race; yet few of them attain the height of five feet; but are well made. Their hair is long and black; their faces flat; their eyes small. They are a branch of the Eskimaux, the small race which borders all the Artic coafts. They originated from the Samoied Afiatics, who, passing over into the New World, have lined the coast from Prince William's Sound on the western side, in lat. 61, quite to the southern part of Labrador on the eastern. They crept gradually in their little canoes northward, and diminished in fize in their progress, till they attained their full degeneracy in the Eskimaux and Greenlanders. Similar people, or vestiges of them, have been seen in different places, from Prince William's Sound to the north of BEHRING's streights. They were again feen by Mr. Hearne in lat. 72. By report of the Greenlanders of Disco bay, there are a few inhabitants in Baffin's bay, in lat. 78. Egede fays, that the country is peopled to lat. 76\*; but the highest colonized spot is at Noogfoak, in lat. 71. They are a race made for the climate, and could no more bear removal to a temperate clime, than an animal of the torrid zone could into our unequal sky: seasons, and defect of habitual food, would foon bring on their destruction. This race has been found to agree in manners, habits, and weapons, and in many instances in language, from Prince William's Sound to the end of Labrador, a tract extending near fifteen hundred leagues †. They only line the coasts; for the Indians persecute them with merciless hatred, and almost push them into the sea. They imagine these poor creatures to be magicians, and that to them they owe every ill fuccess in life t. The numbers of the Greenlanders are now amazingly diminished. In 1730 there were thirty thousand fouls, at prefent only ten thousand; a decrease chiefly owing to the ravage of the

Greenland has been most happy in its Zoologist. The Reverend Mr. Otto Fabricius, whom a laudable zeal for enlightening the minds of the gross inhabitants, led to these parts, hath given a most ample and classical

account

<sup>\*</sup> As quoted in Green's map of America. † Cook's Voy. i. Pref. LXXIV. 1 Same, ii. 43.

of the kind. I eagerly expect the performance of the promised remainder of the work.

The Quadrupeds of this country are, the REIN-DEER, which are here merely considered as objects of the chace. Their number is lessened greatly, and they are now only found in the most remote parts. The Ukalcrajek\* is, I suspect, an animal of imagination. It is said, by the Greenlanders, to be long-eared, hare-lipped, and to refemble that animal; to have a short tail; to be of a white color, with a dark list down the back, and of the fize of a Rein-deer. The Dogs resemble Wolves in figure, fize, and nature. Left to themselves, they hunt in packs the few animals of the country, for the fake of prey. They exactly refemble the Dogs of the Eskimaux of Labrador. It is probable, that they might have been originally brought here by their mafters, who first fled that country, and populated Greenland. ARCTIC FOXES abound here; and, with POLAR BEARS, infest the country. Had I not such excellent authority, I should have doubted whether the Wolverene, usually an inhabitant of wooded countries, was found in Greenland; but it is certainly met with, yet rarely, in the fouthern parts, where it preys on the Rein-deer and White Hares. It must have been originally wasted hither on the ice from Terra de Labrador, the nearest place to this of which it is an inhabitant. The VARYING HARE is very common. The WALRU, and five spec ies of Seals, inhabit these seas: the Common, the Great, the Rough, the HOODED, the HARP, and an obscure species, called by the Laplanders, Fatne Vindac, with a round head and long fnout, bending like the proboscis of an elephant +. Mr. Fabricius adds to the marine animals, the WHALE-TAILED MANATI, of which he once faw the head partly confumed.

The Polar Bears, Seals, and Manati, were originally natives of these countries. The other Quadrupeds sound their way here from either Hudson's Bay or Labrador, on the islands of ice. The Arctic Fox sound

\* Faun. Groenl. p. 26. + Same, p. 17.-Leems Lapm. 214, 215.

Pp2

the

QUADRUPEDS?

### OLD GREENLAND.

the fame kind of conveyance from Greenland to Iceland as it did with the Rein-Deer to Spitzbergen. To the last was wasted, probably from Labrador, the Common Weesel, the Red or Common Fox; and the Mouse, mentioned p. LXIX, missed Greenland, but arrived at and stocked Iceland; and the Common Bat was originally tempest-driven to the latter from Norway: the Wolverene and Varying Hare never reached farther than Greenland.—This seems the progress of Quadrupeds in the frigid zone, as high as land is found.

BIRDS.

The note \* gives the fum of the Birds, land and water.

The numbers of Fish which frequent these icy seas are very considerable. They are, indeed, the great rendezvous of Whales. There is a

* LAND B	IRDS.	Striated Sandpiper, Hebridal Sandpiper,	Nº 383 N° 382	Glaucous, Ivory Gull,	p. 532 B. N° 457
Cinereous Eagle,	p. 214 B.	Dunlin Sandpiper,	Nº 391	Tarrock,	p. 533 D.
Greenland Falcon,	220 E.	Alwargrim Plover,	Nº 398	Arctic,	Nº 459
Gyrfalcon,	221 F.	Ringed Plover,	Nº 401	Fulmar Petrel,	Nº 461
Collared Falcon,	222 G.	EREVE, ulusly,		Shearwater P.	Nº 462
Long-eared Owl ?	Nº 117	PINNAT	ED.	Goofander,	Nº 465
Snowy Owl,	Nº 121	Grey Phalarope,	Nº 412	Red-breasted G.	Nº 466
Raven,	Nº 134	Red Phalarope,	Nº 413	Canada Goofe?	N° 471
Ptarmigan,	p. 315 B.	afted bither on		Grey lag Goofe,	Nº 473
Snow Bunting,	Nº 222	WEBBE	D.	Brant,	Nº 478
Lulean Finch,	p. 380 B.	Great Auk,	Nº 424	Bernacle,	Nº 479
Lefs Red-poll,	Nº 262	Razor-bill,	Nº 425	Eider Duck,	Nº 480
Wheat-ear,	p. 420 P.	Black-billed,	Nº 426	King Duck,	Nº 481
Crested Titmouse?	p. 427 F.	Puffin,	Nº 427	Golden Eye,	N° 486
		Little,	Nº 429	Pin-tail,	Nº 500
CLOVEN-F	OOTED	Black Guillemot,	Nº 437	Long-tailed,	Nº 501
WATER	FOWI	Northern Diver,	Nº 439	Harlequin,	Nº 490
edown hand ad	well son	Red-throated D.	Nº 443	Mallard,	Nº 494
Common Heron,	Nº 433	Great Tern,	Nº 448		p. 573 F.
Snipe,	Nº 366	Black-backed Gull,	Nº 451	Great Tern,	N° 448
Jadreka,	Nº 375	Cinerous G. (Lin. S)		Black-backed Gull,	Nº 451

The fifth species is very doubtful. Except the Canada Goose? there is not a species of Bird which is not found in Europe. This induces me to place all those of Greenland in the appendages to the genera, as they seem to have little clame to America.

fishery

fishery for them by the Dutch, in Disco Bay, as early as April \*. The natives take them at other times, cut off the blubber in an awkward manner, and preferve that and the whalebone as articles of commerce. It is certain that they do not drink train-oil, like the true Eskimann, and some other congenerous people +. The species which frequent Greenland are, the Monopon Monoceros, or Narwhal, Lin. Syft. 105: the Monodon Spurius, Faun. Groenl. No 19; a rare species, with two teeth, about an inch long, projecting from the extremity of the upper jaw: the BALENA MYSTECETUS, or COMMON WHALE, Br. Zool. iii. Nº 16: BALÆNA PHYSALUS, OF FINFISH, Nº 18: BALÆNA BOOPS, Faun. Groenl. Nº 22: BALÆNA MUSCULUS, OF ROUND-LIPPED, Nº 19: the BALENA ROSTRATA, Faun. Groenl. Nº 84; a very small species with a long fnout: Physeter Macrocephalus, Faun. Groenl. Nº 25: PHYSETER CATODON, OF ROUND-HEADED CACHALOT, Br. Zool. iii. No 22: Physeter Microps, of Blunt-Headed Cachalot, Br. Zool. iii. No 21: DELPHINUS ORCA, SPEKHUGGER, OF GRAM-Pus, Faun. Groenl. No 28; the tormentor of the greater Whales, whom they will fix on, as Bull-dogs will on a Bull, and tear out large pieces from their bodies: DELPHINUS PHOCÆNA, the PORPESSE, Br. Zool. iii. Nº 25 : DELPHINUS DELPHIS, or the Dolphin, Nº 24 : the DELPHINUS TURSIO, or the BUTSKOPF, Nº 26: and finally, the DELPHINUS ALBI-CANS, or BELUCA WHALE, p. 182 of this Work, which enlivens those waters with its resplendent whiteness.

Among the cartilaginous species are the Rata Fullonica, Lin. Syst. 396: the White Shark, Br. Zool. iii. N° 42, equally voracious from the equator to the Artic circle; and, with sierceness unsubdued by climate, often bites in two the Greenlanders sitting in their Seal-skin canoes: the Picked Shark, Br. Zool. N° 40: the Basking Shark, N° 41: the Squalus Pristis, or Saw Shark, Lin. Syst. 401: the Lump Sucker, Br. Zool. iii. N° 57; a great article of food with the natives: Cyclop-terus Spinosus, or Spiny Sucker, Faun. Groenl. N° 93: Cyclop-

\* Crantz, i. 118. # Egede, 134.—Crantz, i. 144.

TERUS MINUTUS of PALLAS, Spicil. Zool. fasc. VII. 12. tab. II, or the MINUTE, N° 94: the UNCTUOUS SUCKER, Br. Zool. N° 58.

Of the boney Fishes, the EEL, Br. Zool. N° 63, is rarely found in the fouthern rivers. The Wolf-Fish, N° 65, appears here in the fpring with the Lump Fish, and disappears in autumn. The Greenland Faunist describes a lesser variety, in N° 97, b. The LAUNCE, Br. Zool. iii. Nº 66: the OPHIDIUM VIRIDE, Faun. Groenl. Nº 99: the HADDOCK, Br. Zool. iii. No 74, is plentiful here in winter. GADUS CALLARIAS, or VARIED COD, Lin. Syst. 436; and COMMON COD, Br. Zool. iii. No 73, frequent the coasts in spring and autumn. The Pour, N° 75: GADUS VIRENS, OF GREEN COD, Lin. Syst. 438: the HAKE, Br. Zool. Nº 81: the LING, N° 85: and the GADUS BROSME, Faun. Groenl. Nº 107, are species of Cod-fish found in these seas. The Spotted Blenny, Br. Zool. iii. No 93. A new species, the BLENNIUS PUNCTATUS, Faun. Groenl. No 110; and that curious fish the Coryphæna Rupestris, N° 111, Act. Nidr. iii. tab. 111; the first rare, the last frequent in the deep fouthern bays. The ARMED BULL-HEAD, Br. Zool. iii. No 98. The FATHER LASHER, N° 99, is a most common fish, and singularly useful. Cottus Scorpioides, Faun. Groenl. Nº 114; Quadricornis, Lin. Syft. 451; and the RIVER BULL-HEAD, Br. Zool. iii. Nº 97, are found here in falt-water. The ZEUS GALLUS, Lin. Syst. 454, a fish of the hottest parts of South America, is suspected to be found here. The Ho-LIBUT, Br. Zool. iii. N° 102, is very common; as is the Pleuronectes CYNOGLOSSUS, Faun. Groenl. No 118; and the new species, PL. PLA-TESSOIDES, N° 119, is feen here in small numbers near the mouths of rivers. LABRUS EXOLETUS, Faun. Groenl. Nº 120: STRIPED WRASSE? Br. Zool. iii. 119: PERCA NORVEGICA, Faun. Groenl. Nº 121: THREE-SPINED STICKLEBACK, Br. Zool. iii. No 129, not only in rivers but places overflowed by the fea. The Salmon, No 143, is extremely scarce at present; yet in Davis's time, was among the presents made to him by the favages; and Baffin \* faw most amazing shoals of these fish in Cockin's

\* Purchas, iii. 348.

Sound

Sound, on this western coast, in lat. 65. 45. The SALMO CARPIO, Faun. Groenl. No 124, is one of the most common and useful fishes; is frequent in the lakes, rivers, and estuaries. The CHAR, Br. Zool. iii. No 149, conforts with the other, and is as common. The SALMO STAGNALIS, Faun. Groenl. No 126, a new species, found remote in the mountain lakes, and caught only by the hunters of Rein-deer. The SALMO RIVALIS, N° 127, is another, inhabiting small brooks. The SALMO ARCTICUS, N° 128, or Capelin of the Newfoundland fishers \*, is the last of this genus, but the most useful; the daily bread, and the fish in highest esteem with the Greenlanders, and providentially given to them in the greatest abundance. The COMMON HERRING, Br. Zool. iii. No 160, is a rare fish in these seas; as is the Anchovy, N° 163.

The fame indefatigable Zoologist hath discovered in this country (including crustaceous) not fewer than ninety-one Insects, a hundred and twenty-fix Vermes, fifty-nine shells, and forty-two Zoophytes.

JOHN DAVIS, a most able seamen, was the first who examined the west JOHN DAVIS, HIS side of Greenland. Before his time the eastern coast was the only part known to Europeans. He made there three different voyages, in 1585, 1586, and 1587. After doubling Cape Farewell, he founded, and could not find bottom with three hundred fathoms of line. North of what he properly called the Land of Desolation, he arrived in a filthy, black, and stagnating water, of the depth of a hundred and twenty fathoms. He found drift-wood in lat. 65, and one entire tree fixty feet long, with its root; the species were Fir, Spruce, and Juniper +, which came down from remote places on the banks of the rivers of Hudjon's Bay; for Mr. Hutchins affures me, that to this day, in certain years, vast quantities of timber are brought down with the ice at the opening of the rivers. He also met with black Pumices ‡, whether from neighboring vulcanoes, burning or extinct, remains unknown; or whether, which is most probable, conveyed there from Iceland. The stone of the country is mostly granitical.

Some

<sup>\*</sup> See it well engraven in M. Du Hamel, Hift. de Poissons, part ii. tab. xxvi,

<sup>+</sup> Davis's Voy. in Hackluyt, iii. 101. 1 Same, 111.

Some fand-stone, and many forts of coarse marble. The Lapis Ollaris is found here in abundance, and of great use to the natives for making of pots. Talc is frequent here, Asbestos, and Gypsum. Granates are not uncommon. Sulphureous Marcasites, which have more than once deceived the navigators with the opinion of their being gold\*. The mineral symptoms of copper, such as stains of blue and green, are seen on these rocks; but avarice itself will never tempt adventurers to make here a trial.

Davis's streights is frequented by some of our whale-fishers: they sail from England (e.g.) Yarmouth, the beginning of March, arrive there about the middle of April, and go up the streights two hundred leagues, towards Disco bay, or North-east bay, usually called by the seamen Northeast Bite. In these parts the Whales are larger, but sewer than in the Spitzbergen seas. Seals there are also scarcer. It is singular that no intelligence is to be obtained concerning Bassin's bay, from these navigators.

Davis got as high as lat. 72, and called the country London Coast. The streight he passed, between the west of Greenland and the great islands, is honored by his name. He seems to have been engaged among the great islands; for he says he sailed sixty leagues up a sound, found the sea of the same color with the main sea, and saw several Whales. He sailed through another sound to the south-west, sound ninety sathom water at the entrance; but within could not touch ground with three hundred and thirty. He had hopes of having sound the long-sought-for passage. The tides rose six or seven sathoms; but, as is frequent among islands, the slood came from such variety of places, that he could not trace its principal origin †.

BAFFIN's BAY. At lat. 72. 30, I must take as my pilot that great seaman William Baffin, who gave name to the great bay I now enter on. His first voyage was in 1613; his second, in which he made the most effectual trial for the north-

\* Purchas, iii. 833 .- Egede, 32. + Hackluyt, iii. 102.

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west passage, was in 1616. He passed through Davis's Streights. In lat. 70. 20, on the London Coast, he found the tides rise only eight or nine feet. In Horn Sound, lat. 73. 45, he met with several people \*. To the north of that, in 75. 40, was a large and open bay; Cape Dudley Digges forms its northern point; within is Westenholme Sound; beyond that, Whale Sound; and in the extreme north, or bottom of this great bay, is that named by Baffin after Sir Thomas Smith, lying in 78 degrees. In those three founds were abundance of Whales; but in the last the largest in all this bay. It is highly probable, that there are one or more communications from hence to the Icy Sea, through which the Whales pass at certain seasons; and this (if I may collect from their numbers) might be that of their migration fouthward. The distance into the Icy Sea can be but very small, but probably blocked up with ice; or if not, from the fudden shifting of the ice in that sea by the change of wind, the passage must be attended with too great hazard to be attempted. The ice prevented our great seaman from making trial of the tides in this bay, which would have brought the matter to greater certainty. He faw multitudes of Walruses and Seals in these parts, but no signs of inhabitants. From hence the land trended westerly, to a found he called by the name of Alderman Jones, in lat. 76. 40. Here the land ran due fouth to a great found in lat. 74. 20, which he called Sir James Lancaster's. From this place the land took an eastern curvature, to the streights between the continent and Cumberland island. Baffin took his course between that isle and the isle of Saint James, left his name to the streight he passed, and arrived fafe in Cockin's Sound, on the coast of West Greenland, where he found the tide rife eighteen feet: this, and fimilar excesses, arising from the confined situation of places +.

This is the only voyage ever made into Baffin's Bay. Christian IV. of Denmark, in 1619, sent John Munck, a most able seaman, to make discoveries in these parts; but, notwithstanding any surmises of his having

<sup>\*</sup> Hackluyt, iii. 846.

<sup>†</sup> For the account of this curious voyage, fee Purchas, iii. from p. 836 to 848.

reached this famous bay, he got no farther than Hudjon's Bay; to which, in honor of his master, he gave the name of Christian Sea. He passed a miserable winter in Churchill river, and returned home the next year, after losing, during his stay on shore, every man but two \*. Munck never reached beyond lat. 63. 30. A cruel sate attended this able seaman. Being still persuaded of the possibility of a north-west passage, he engaged several opulent people in the design, who equipped two vessels, and committed them to his care. On taking leave of his prince, Christian IV. some discourse arose concerning his late expedition. The king ungenerously reproached him with being the cause of its miscarriage. Munck, indignant at the aspersion, answered his majesty with warmth, on which the king struck him with his cane. Munck was so affected, that he took to his bed, resused all food, and died of grief at the unjust usage he had experienced †.

Hupson's BAY.

We now proceed through a nameless streight, between the main land and the two great islands on the east; and, after doubling Cape Southampton, enter into Hudson's Bay, in the gulph called the Welcome. This bay was discovered in 1610, by that able seaman Henry Hudson, from whom it takes its name. His view, in the voyage he made, was the discovery of a passage to the East Indies. The trial has been vigorously pursued since his days, but without success. In 1742 an attempt was made, as low as the bottom of the Welcome, by Captain Middleton; and from the check he met with, he called that part Repulse Bay. In subsequent trials Wager's Water was suspected to be the passage into the Western ocean; but in 1747 its end was discovered, and found to terminate in two navigable rivers. The romantic scenery which the adventurers met with in the way is most admirably described by the elegant pen of Mr. Henry Ellis.

CHESTERFIELD

Chestersield, or Bowden's Inlet, was likewise suspected to have been the desired streight; but in 1762 Messrs. Norton and Christopher, in a sloop and cutter, belonging to the Company, went to the remotest end. At the distance

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<sup>\*</sup> Clerk of the California's Voy. i. 106.—For a further account of this unfortunate voyage, fee Churchill's Collection, ii. 472.

† Churchill—476.

of a hundred and twenty-eight miles from the mouth was scarcely any tide; thirty miles farther it quite died away. The land here grew contracted into a very narrow passage. Here the adventurers entered with the cutter, and discovered that the end was in a magnificent fresh-water lake, to which was given the name of Baker's. The land was quite level, rich in grass, and abounding with Deer. They found the end quite innavigable, and to terminate in a small stream, with many shoals at its mouth, and three falls across it. After finding the water decrease to the depth of two feet, they returned fully satisfied with their voyage.

Hudson's Bay has been so frequently described, that I shall only give a general view of it and its adjacent parts. Its entrance from the ocean, after leaving to the north Cape Farewell and Davis's Streights, is between Resolution isles on the north, and Button's isles, on the Labrador coast, to the fouth, forming the eastern extremity of the streights distinguished by the name of its great discoverer. The coasts very high, rocky, and rugged at top; in places precipitous; but sometimes exhibit large beaches. The isles of Salifbury, Nottingham, and Digges, are also very lofty, and naked. The depth of water in the middle of the bay is a hundred and forty fathoms. From Cape Churchill to the fouth end of the bay are regular foundings; near the shore shallow, with muddy or fandy bottom. To the north of Churchill, the foundings are irregular, the bottom rocky, and in some parts the rocks appear above the furface at low water. From Moofe river, or the bottom of the bay, to Cape Churchill, the land is flat, marshy, and wooded with Pines, Birch, Larch, and Willows. From Cape Churchill to Wager's Water the coasts are all high and rocky to the very fea, and woodless, except the mouths of Pockerekesko, and Seal rivers. The hills on their back are naked, nor are there any trees fo ra great distance inland. sed bes solly unit of I . we delay all le stoles all

The mouths of all the rivers are filled with shoals, except that of Churchill, in which the largest ships may lie; but ten miles higher, the channel is obstructed with sand-banks; and all the rivers, as far as has been navigated, are full of rapids and cataracts, from ten to sixty seet perpendicular. Down these rivers the Indian traders find a quick passage; but their return is a labor of many months.

As

As far inland as the Company have fettlements, which is fix hundred miles to the west, at a place called *Hudson House*, lat. 53. long. 106. 27, from *London*, is flat country: nor is it known how far to the eastward the great chain, seen by our navigators from the *Pacific Ocean*, branches off.

CLIMATE.

The climate, even about Haye's river, in only lat. 57, is, during winter, excessively cold. The snows begin to fall in October, and continue falling by intervals the whole winter; and, when the frost is most rigorous, in form of the finest sand. The ice on the rivers is eight feet thick. Port wine freezes into a folid mass; brandy coagulates. The very breath fell on the blankets of the beds in form of a hoar-frost, and the bed-cloaths often were found frozen to the wall\*. In the very cold nights it is impossible to sleep an hour without being awakened by the cracking of the beams, which are rent by the expansive power of the frost. They are often mistaken for the three-pounders placed on the top of the Company's house. Up the country the noise occasioned by the burst of the rocks is quite terrible, bursting with a report equal to that of many heavy artillery fired together, and the splinters are thrown to an amazing distance †. The sun rises, in the shortest day, at five minutes past nine, and sets five minutes before three. In the longest day the fun rifes at three, and fets about nine. The ice begins to disappear in May, and hot weather commences about the middle of June; which, at times, is fo violent, as to fcorch the face of the hunters. Thunder is not frequent, but very violent. But there must be great difference of heat and cold in this vast extent, which reaches from lat. 50. 40, to lat. 63, north.

Fish.

During winter the firmament is not without its beauties. Mock funs and halôs are not infrequent; are very bright, and richly tinged with all the colors of the rainbow. The fun rifes and fets with a large cone of yellowish light. The night is enlivened with the *Aurora Borealis*, which spreads a thousand different lights and colors over the whole concave of the

<sup>\*</sup> Voy. to Hudson's Bay, 1746, written by the Clerk of the California, i. 159. His name was Drage; his account is sensible and entertaining.

<sup>#</sup> Mr. Wales, in Ph. Tranf. 1x. 125.

fky, not to be defaced even by the splendor of the full moon; and the stars are of a fiery redness\*.

Hudjon's Bay is very ill supplied with Fish. The common Whale is frequent there. The Company have attempted to establish a fishery; and for that purpose procured experienced people from the Spitzbergen ships, and made considerable trials between lat. 61 and 69; but, after expending twenty thousand pounds, and taking only three sish, were, in 1771, obliged to desist. The ice prevented the vessels from getting to a proper station in due time; and the hard gales, and quick return of winter, always deprived them of an opportunity of making a fair trial. The sishery of the Beluga, or White Whale, is attended with more success. It haunts the mouths of rivers in June, as soon as they have discharged the ice, and are taken in great numbers. There are two varieties; one with a blue cast, the other of a pure white. These animals, probably, superfete; a scetus of six inches in length having been extrasted, at the same time that a young one has been seen seen (as is their custom) mounted on the back of another.

Sturgeons are frequently taken near Albany above two hundred pounds in weight: and, fince the Company have had fettlements far inland, its fervants annually take numbers which weigh from feventy to a hundred pounds each. I suspect that the Sturgeons of the great lakes of Canada, which, I am told, are smooth, or free from tubercles, are the same with Acipenser Huso of Linnaus, and Hauson of the Germans, a fish of the Danube and Wolga.

The Lophius Piscatorius, or Common Angler, Br. Zool. iii. N° 51, appears towards the surface only in windy weather; for which reason it is called by the natives Thutina-meg, or the Wind-fish.

The Gadus Lota, or Burbot, Br. Zool. ii. N° 86, is common in the rivers, and is caught with hooks after nine o'clock at night. It is called here Marthy; grows to the weight of eight pounds; is so voracious as to feed even on the tyrant Pike; will devour dead Deer, or any carrion, and even swallow stones to fill its stomach: one of a pound weight has been taken out of a fish of this species. It spawns about February 8th, and is unhappily most prolific. Mr. Hutchins counted, in a single fish, 671,248 ovaria.

Allied to this is the *Mathemeg* of the natives, the Land Cod of the English, a fish abundant in the northernly lakes; it grows to the length of three feet, and the weight of twelve pounds: has three beards on the lower jaw; the middlemost the longest: the back is brownish: the belly grey.

The Perca Fluviatilis, or common Perch, Br. Zool. iii. N° 124, is found in the rivers, but not in plenty; and fometimes grows to the weight of eight pounds. The Gasterosteus aculeatus, or three-spined Stickleback, Br. Zool. iii. N° 129, is found here in great numbers.

Salmo Salar, or the common Salmon, Br. Zool. iii. N° 143, is taken in plenty from June to August, in nets placed along the sea-shores, and salted for use. Very sew are caught to the south of Churchill river.

The Namaycush, is a species of Trout, with the head, back, dorsal fin, and tail of a dark blue: the sides dusky, marked with white and reddish spots: the belly silvery: the slesh white, and very delicate. It is caught with the hook in lakes far inland; and sometimes of the weight of thirty pounds. A Trutta lacustris generis, p. 1012. Wil. Ictb. 198?

Salmo Alpinus, or Char, Br. Zool. iii. N° 149, is common in the fresh waters, and weighs from two to six pounds.

The Salmo Lavaretus, or Gwiniad, Br. Zool. iii. N° 152, is found here in vast abundance; and grows to a size far superior to those of Europe. There is a lesser kind, called here the Sea Gwiniad: the head is not so dusky: eyes smaller; and back less arched. The nose of the male is blunt; and the stomach muscular, like a gizzard: the semale has an arched nose. They are very numerous in autumn, just when the rivers are frozen over, and are called here Tickomeg. The Salmo Arsticus, or Capelin, is observed to precede the Salmon, and is sometimes thrown on shore in amazing quantities by hard gales.

The Omisco Mayeus is a new species of Trout, taken in May in Albany river, not exceeding four inches and a half long. It has five branchiostegous rays: first dorsal fin has eleven rays, ventral eight, anal seven, pectoral thirteen: tail forked: in the jaws are minute teeth: back, as low as the lateral line, is of a pale color, marked with two longitudinal rows

of

of black stelliform spots: below the lateral line the color silvery: the belly white.

The Pike, Br. Zool. iii. No 153, abounds in all the lakes. Mr. Hearne affures me, that he has taken some above twenty pounds apiece, and in the inland lakes even above thirty.

The Cyprinus Catastomus of Dr. Forster\*, or Sucker Carp, is a new species: of which there are two varieties; the Mithomapeth of the Indians, marked with a broad stripe of red along the lateral line, and found on the sea-coast; and the White, or Namapeth, with larger scales, and wholly of a whitish color: very scarce in the salt-water, but in such plenty in the inland lakes and rivers, as to be even burdensome to the nets. They grow to the weight of two pounds and a half, and in the inland lakes to a far greater size. The form is oblong: the head boney, rugged, and decreasing to the tip of the nose: the mouth small, and placed beneath: the body scaly: the tail lunated.

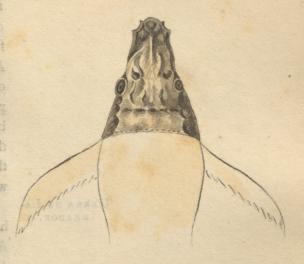
Shell-fish are very scarce in this sea. Mytilus Edulis, the Edible Mussel, Br. Zool. iv. No 73, alone are plentiful; but of Cockles, only the dead shells are seen. From the number of shells which are dug up, for the space of ten miles inland of this stat muddy country, may be collected a proof of the great retreat of the water; but for want of inhabitants, the period of its loss cannot be ascertained.

Multitudes of birds retire to this remote country, to Labrador, and Newfoundland, from places most remotely south, perhaps from the Antilles; and some even of the most delicate little species. Most of them, with numbers of aquatic sowls, are seen returning southward, with their young broods, to more savorable climates. The savages, in some respects, regulate their months by the appearance of birds; and have their Goose month from the vernal appearance of Geese from the south. All the Grous kind, Ravens, cinereous Crows, Titmouse, and Lapland Finch, brave the severest winter; and several of the Falcons and Owls seek shelter in the woods. The Rein Deer pass in vast herds towards the

By whom it is well described and figured, in vol. Ixiii. p. 155. tab. vi. of Ph. Trans.

SUCKER CARP.







north, in October, feeking the extreme cold. The male Polar Bears rove out at fea, on the floating ice, most of the winter, and till June: the females lie concealed in the woods, or beneath the banks of rivers, till March, when they come abroad with their twin cubs, and bend their course to the sea in search of their consorts. Several are killed in their passage; and those which are wounded shew vast sury, roar hideously, and bite and throw up into the air even their own progeny. The semales and the young, when not interrupted, continue their way to sea. In June, the males return to shore, and, by August, are joined by their consorts, with the cubs, by that time of a considerable size\*.

TERRA DE LA-BRADOR.

The eastern boundary of the bay is Terra de Labrador; the northern part has a strait coast facing the bay, guarded with a line of isles innumerable. A vast bay, called the Archiwinnipy Sea, lies within it, and opens into Hudson's Bay by means of Gulph Hazard, through which the Beluga Whales dart in great numbers. Here the Company had a fettlement, for the fake of the fishery, and for trading with the Eskimaux; but deserted it as unprofitable about the year 1758 or 1759. The eastern coast, so admirably described by that honored name, Sir ROGER CURTIS +! is barren past the efforts of cultivation. The surface every where uneven, and covered with masses of stone of an amazing size. It is a country of fruitless vallies and frightful mountains, some of an astonishing height: the first watered by a chain of lakes, formed not from springs but rain and fnow, fo chilly as to be productive of only a few small Trout. The mountains have here and there a blighted shrub, or a little moss. The vallies are full of crooked stunted trees, Pines, Fir, Birch, and Cedars, or rather a species of Juniper. In lat. 60, on this coast, vegetation ceases. The whole shore, like that on the west, is faced with islands at some distance from land. The inhabitants among the mountains are Indians; along the coasts, Eskimaux. The Dogs of the former are very small; of the latter, large, and headed like a Fox. Notwithstanding they have

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<sup>\*</sup> See an ingenious and laudable Calendar of Hudson's Bay, published by Doctor Macfait, in his new System of General Geography, 348 to 354. 

† Ph. Trans. lxiv. 372.

Rein-deer, they never train them for the sledge; but apply the Dogs to that use\*. Walkuses visit a place called Nuchvünk, in lat. 60, during winter; from thence they purchase the teeth, with which they head their darts. Davis suspected that he had found a passage on this coast, in 1586, to the Western ocean; but it proves no more than a deep bay.

That curious body the Labrador stone, which restects all the colors of the peacock, is found there in loose masses. The late Mr. La Trobe shewed me a piece of exquisite beauty, finely polished, which he procured from the missions in that country. It is, according to Mr. Kirwan, a feldt-

spat, softer than the common kind.

The laudable zeal of the Moravian clergy hath induced them to fend, in the year 1752, missionaries from Greenland to this country. They fixed on Nisbet's harbour for their settlement; but the first party was partly killed, partly driven away. In 1764, under the protection of our government, another attempt was made. The missionaries were well received by the Eskimaux, and go on with success. These pious people, like the Jesuits, have penetrated almost into every part of the known world; and, for the sake of the Gospel, dared the extremities of heat and cold. They endeavoured to humanize the savages of Greenland, and improve the morals of the soft inhabitants of the unwholesome coasts of Bengal. They are not actuated by ambition, political views, or avarice. Here my comparison with the once-potent order of the Roman church sails.

Terra de Labrador, at Cape Charles, in lat. 52, trends towards the fouth-west. Between that cape and the isle of Newfoundland begin the streights of Belleisle, a passage with from twenty to thirty fathoms water; but often choaked up with the floating ice from the north, even so late as the middle of June ‡. They open into the vast triangular gulph of St. Laurence, bounded to the north by Terra de Labrador; to the west by Nova Scotia;

<sup>\*</sup> Ph. Trans. 1xiv. 386.

<sup>+</sup> Crantz, Hift. Morav. 404, 608.

<sup>1</sup> Barrington's Miscel. 25.

to the east by Cape Breton and Newfoundland. In the western corner, the vast river of St. Laurence discharges itself; arising from a thousand streams which feed the sea-like lakes of Canada, and, after falling down the amazing cataract of Niagara, and darting down the slopes of number-less foaming rapids, tremendous to all but British battalions\*, forms a matchless navigation of many hundred miles. Jacques Cartier, a native of St. Maloes, had, in 1534, the honor of being the first discoverer of this noble river.

MAGDALENE ISLES. In the gulph are scattered several important islands, occupied by the English and French for the sake of the sisheries. The small rocky isles of St. Magdalene are still frequented by numbers of Walruses. There is an annual chace during the season, and numbers are killed for the sake of the oil and skins. The water round the Magdalenes is only from three to nine sathoms deep, and the shores slope most conveniently into it for the ascent or descent of these animals. The water round the other isles is of one depth, except on the north side of St. John's.

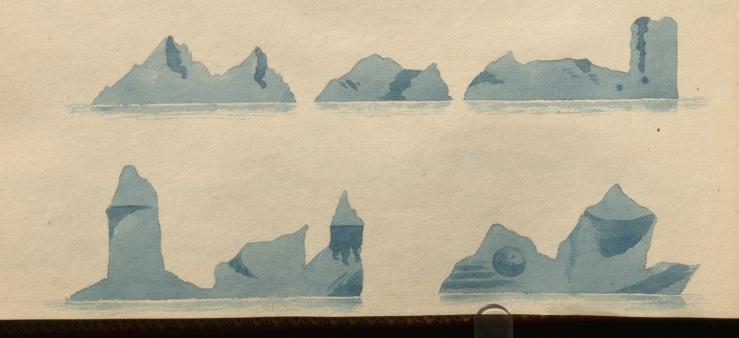
NEWFOUNDLAND.

North America) was discovered in 1496, by the celebrated Venetians, Sebastian Cabot and his three sons; who, at their own charges, under a grant of Henry VII. giving them possession (as vassals of his) of all lands they might discover; coasted from lat. 67. 30, to the capes of Florida, and thus indisputably gave to ill-sated Britain the right, by pre-discovery, of the whole continent of North America. The short-sighted avaricious prince, under whose banners it was discovered, had not the heart to make the proper advantage. He had before neglected the offer of Columbus, which would have given him that species of right to the whole New World. But, says the courtier-like Bacon & it was not a resultation the king's part, but a delay by accident, which put by so great an acquest. The French soon found out the gold mine of the Newfoundland discovery,

- \* Read the account of Lord Amberst's descent down this river, in 1760.
- 1 Rymer's Fæd. xii. 595.
- & Hist of King Henry VII. Bacon's Works, iii. 89.

which

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which offered itself in the fisheries. Of all minerals (twice says the same noble philosopher) there is none like the fisheries. In 1534 they were actually engaged in them: A private man, Sir Humphry Gilbert, brotherin-law to RALEIGH, or, what was better, animated by a congenial foul, failed in 1583 with every provision for settling this important colony. On his return he was fwallowed up by the ocean. His love of improvement, and his piety, never forfook him. He was feen fitting unmoved in the stern of his ship, with a book in his hand; and often heard to fay, ' Courage, my lads! we are as near heaven at fea as at

The ise of Newfoundland is of a triangular form, and lies between lat. 46. 40, and 51. 30: visited occasionally, but not inhabited, by savages from the continent.

The boafted mine of this ifland lies on the fouthern and western sides, on the great bank, which stretches from north-east to south-west, about two hundred leagues. The water on the bank is from twenty-two to fifty fathoms; on the outfide from fixty to eighty; on the leffer banks much the fame. A great fwell and thick fog generally mark the place of the greater. The subject of the fishery has been often treated of; but the following short though clear account of so interesting a subject cannot fail being acceptable to the British reader.

" The boats or shallops are forty feet in the keel, rigged with a main. NEWFOUNDLAND mast and foremast, and lugsails; furnished with four oars, three of which row on one fide, and the other (which is twice as large) belays the other three, by being rowed fideways over the stern, by a man who stands up for that purpose, with his face towards the rowers, counteracting them, and steering at the fame time as he gives way to the

" Each of the men in this boat is furnished with two lines, one at each fide of the boat, each furnished with two hooks; fo here are fixteen hooks

amband an sant se solde \* Hackluyt, iii. 159. nothers to that sat of harman

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constantly employed; which are thought to make a tolerable good day's work of it, if they bring in from five to ten quintals of fish, though they have stowage for, and sometimes bring in thirty. Two hundred quintals is called a faving voyage; but not under. The bait is small fish of all kinds; Herring, Capelin, Lance, Tom Cod, or young Cod; the first of which they salt, and keep for some time, in case of scarcity of the rest; but these are not near so eagerly taken by the fish when salted. In case small sish cannot be got, they use sea-fowl, which are easily taken in vast numbers, by laying nets over the holes in the rocks where they come to roost in the night. If neither small sish nor birds are to be got, they are forced to use the maws of fish they catch, which is the worst bait of any.

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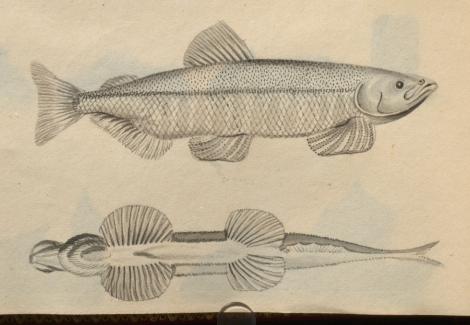
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"When the fish are taken, they are carried to the stage, which is built with one end over the water for the conveniency of throwing the offals into the sea, and for their boats being able to come close to discharge their fish. As foon as they come on the stage a boy hands them to the header, who stands at the side of a table next the water end; whose business it is to gut the fish and cut off the head, which he does by pressing the back of the head against the fide of the table, which is made sharp for that purpose; when both head and guts fall through a hole in the floor into the water. He then shoves the fish to the splitter, who stands opposite to him: his business is to split the fish, beginning at the head, and opening it down to the tail; at the next cut he takes out the larger part of the back-bone, which falls through the floor into the water. He then shoves the fish off the table, which drops into a kind of hand-barrow, which as foon as filled, is carried off to the falt-pile. The header also flings the liver into a separate basket, for the making of train-oil, used by the curriers, which bears a higher price than Whale-oil.

"In the falt pile, the fish are spread upon one another, with a layer of falt between. Thus they remain till they have taken salt; and then are carried, and the salt is washed from them by throwing them off from shore in a kind of float called a *Pound*. As soon as this is completed, they are earried to the last operation, of drying them; which is done on standing flakes



#### NEWFOUNDLAND FISHERY.

flakes made by a slight wattle, just strong enough to support the men who lay on the fish, supported by poles, in some places as high as twenty feet from the ground: here they are exposed, with the open side to the sun; and every night, when it is bad weather, piled up five or six on a heap, with a large one, his back or skinny part uppermost, to be a shelter to the rest from rain, which hardly damages him through his skin, as he rest slanting each way to shoot it off. When they are tolerably dry, which in good weather is in a week's time, they are put in round piles of eight or ten quintals each, covering them on the top with bark. In these piles they remain three or sour days to sweat; after which they are again spread, and when dry put into larger heaps, covered with canvas, and left till they are put on board.

"Thus prepared, they are fent to the Mediterranean, where they fetch a good price; but are not esteemed in England: for which place another kind of fish is prepared, called by them Mud Fish; which, instead of being split quite open, like their dry fish, are only opened down to the navel. They are salted, and lie in salt, which is washed out of them in the same manner with the others; but instead of being laid out to dry, are barrelled up in a pickle of salt boiled in water.

"The train-oil is made from the livers: it is called so to distinguish it from Whale or Seal oil, which they call fat oil, and is sold at a lower price (being only used for lighting of lamps) than the train-oil, which is used by the curriers. It is thus made:—They take a half tub, and, boring a hole through the bottom, press hard down into it a layer of spruce boughs; upon which they place the livers; and expose the whole apparatus to as summy a place as possible. As the livers corrupt the oil runs from them, and, straining itself clear through the spruce boughs, is caught in a vessel set under the hole in the tub's bottom."

I must acknowlege my obligations to vice admiral Campbel, for the trouble he took in procuring, during his government, the following accounts from the different divisions of the great island of Newfoundland;



# NEWFOUNDLAND.

land; and some additions to the manner of carrying on its most important

Within the circuit of fixty miles of the fouthern part, the country is hilly, but not mountanous. The hills increase in height as they recede from the fea; their course is irregular, not forming a chain of hills, but rise and fall abruptly.

The coasts are high, and the shores most remarkably bold. The same may be said of almost every part of this vast island.

The country is much wooded, and the hills (fuch which have not flat tops, to admit the rain to stagnate on them) are cloathed with birch, wich hazel, spruce, fir, and pine, all small; which is chiefly owing to the inhabitants taking off the bark to cover the fish stages. This peninfula is so indented by the fine and deep bays of Placentia, St. Mary, Conception, and Trinity, that it may be easily penetrated in all parts, which is done for the sake of sowling, or the procuring of spars for masts, oars, &c.

The island is on all sides more or less pierced with deep bays, which peninsulate it in many places by isthmuses most remarkably narrow.

The mountains on the fouth-west side, near the sea, are very high, and terminate in losty headlands. Such are Chapeau rouge, a most remarkably high promontory; Cape St. Mary's, and Cape le Hune. Such in general is the formation of the island: on the north-east, most of the hills in the interior parts of the country terminate pyramidally, but form no chain. The interior parts of the country consist chiefly of morasses, or dry barren hummocks, or level land, with frequent lakes or ponds, and in some places covered with stunted black spruce. The rivers of Newfoundland are unsit for navigation, but they are of use in floating down the wood with the summer floods. Still the rivers and the brooks are excellent guides for the hunters of beavers, and other animals, to penetrate up the country; which as yet has never been done deeper than thirty miles. Near the brooks it is, that timber is commonly met with, but seldom above three or four miles inland, and in vallies; the hills in the northern district being naked and barren.

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In some parts of Newfoundland there is timber sufficiently large for the building of merchant ships: the hulk is made of the black larch, and the pine furnishes masts and yards; but as yet none has been found large enough for a mast for a large cutter.

The fishery is divided into two seasons: that on the shore, or the shore season, commences about the 20th of April, and ends about the 10th of October; the boats sish in from sour to twenty sathoms water.

The most important, the bank-fishing season, begins the 10th of May, and continues till the last of September, and is carried on in thirty to forty-five fathoms depth of water.

Banking vessels have sailed from St. John's to the bank as early as the 12th of April. At first they use pork or birds for a bait; but as they catch fish, they supply themselves with a shell-fish called clams, which is found in the belly of the cod. The next bait is the lobster; after that, the herring, and the launce, Br. Zool. III. N° 66, which last till June, when the capelan comes on the coast, and is another bait. In August the squid comes into use, and finally the herring again.

The greatest number of cod-fish taken by a single sisherman in the season, has been twelve thousand; but the average is seven thousand. The largest sish which has been taken was four feet three inches long, and weighed forty-six pounds.

A banking vessel of ten thousand fish ought to be filled in three weeks, and so in proportion; and eighty quintals (112 lb. each) for a boat in the same time.

In 1785, five hundred and forty-one English vessels fished on the bank; a number exceeding that of the French.

A heap of dried fish twenty feet long, and ten wide, and four deep, contains three hundred quintals. Such an heap settles, in the course of forty-eight hours after it is made, about 1-12th.

An extraordinary splitter will split five quintals of fish in an hour. The average in that time is two.

There is no fishing during winter, on account of the inclemency of the feason.

feason. It is supposed that the fish in a great measure quit the banks before that time, as in general they are very scarce when the fishing vessels go upon the banks early in the spring.

There are a few small towns on the coasts, which have gardens sown with English pulse; but many of the inhabitants quit the country in winter.

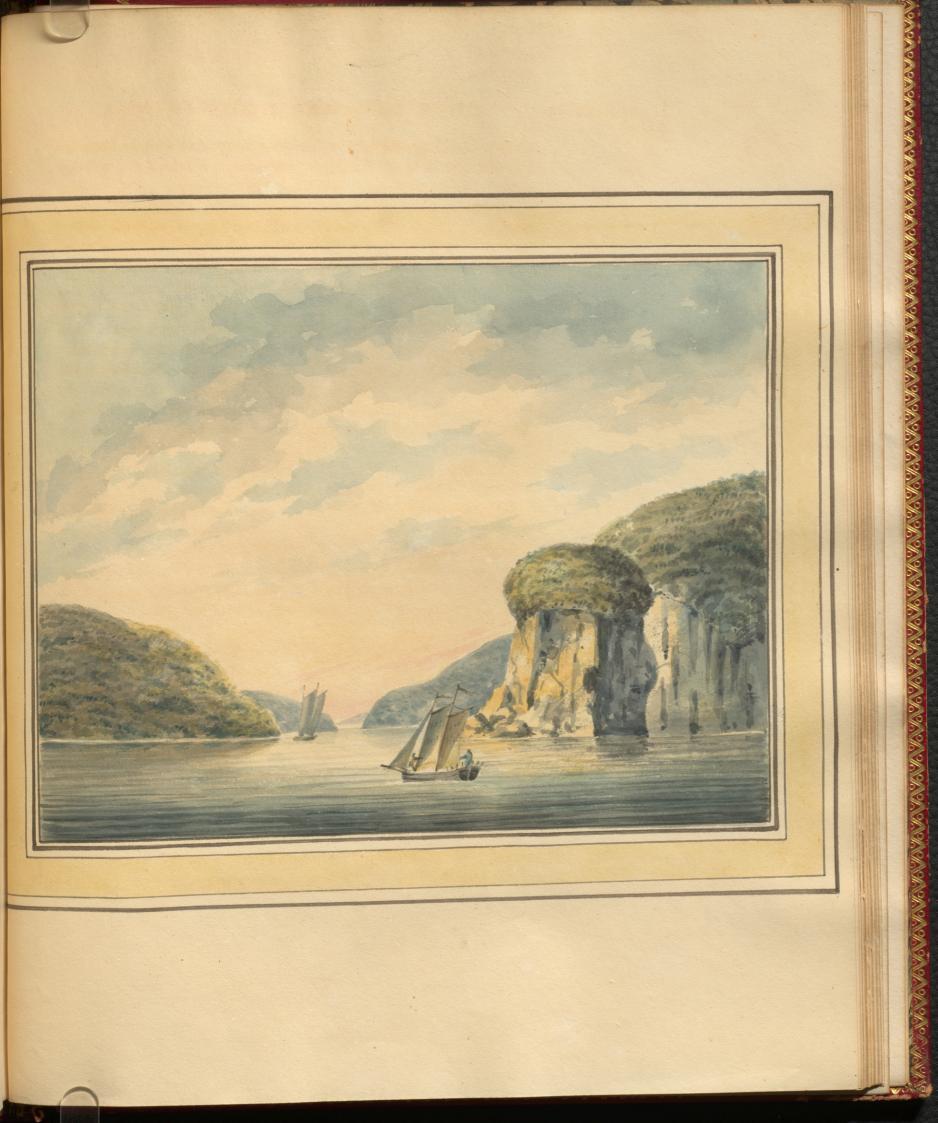
An admiral, or some sea officer, is governor of Newfoundland. He sails from England in May, and returns by the 30th of November.

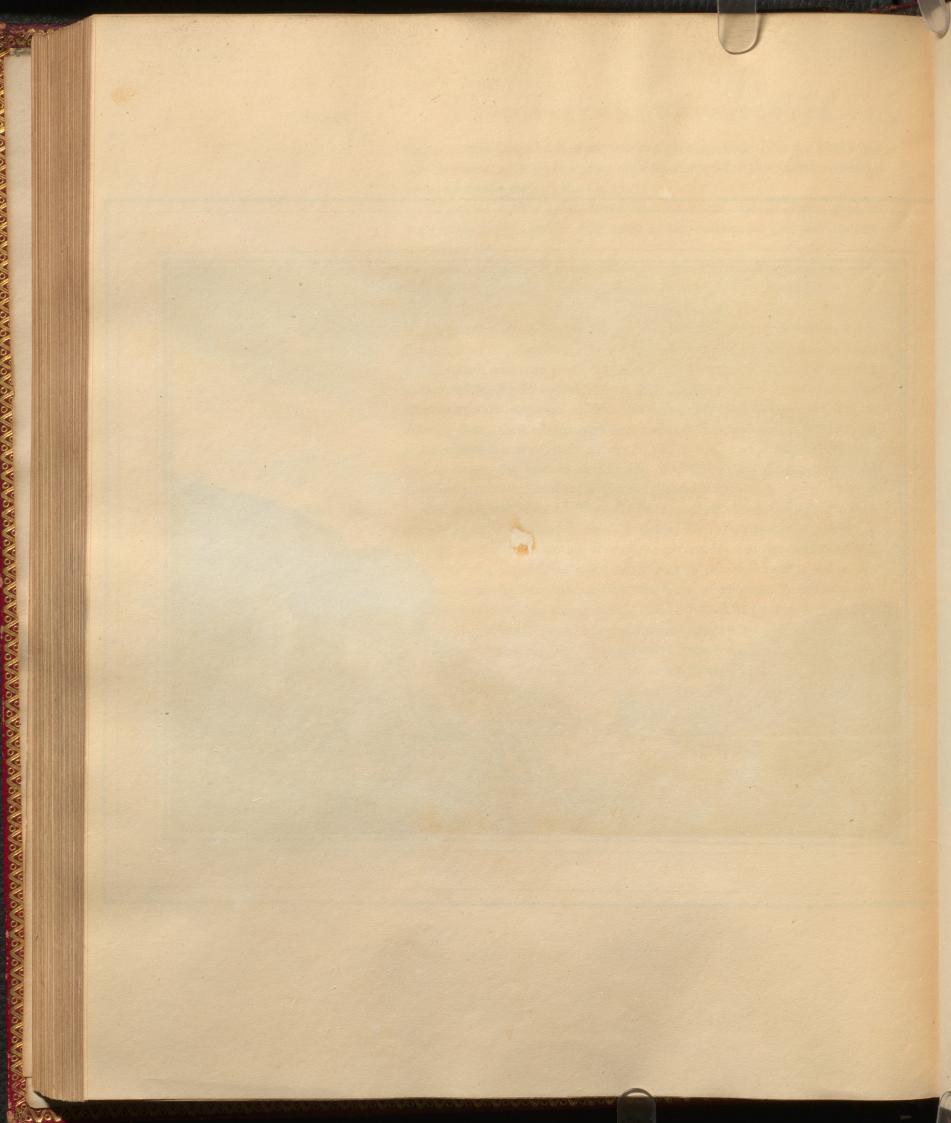
CAPE BRETON.

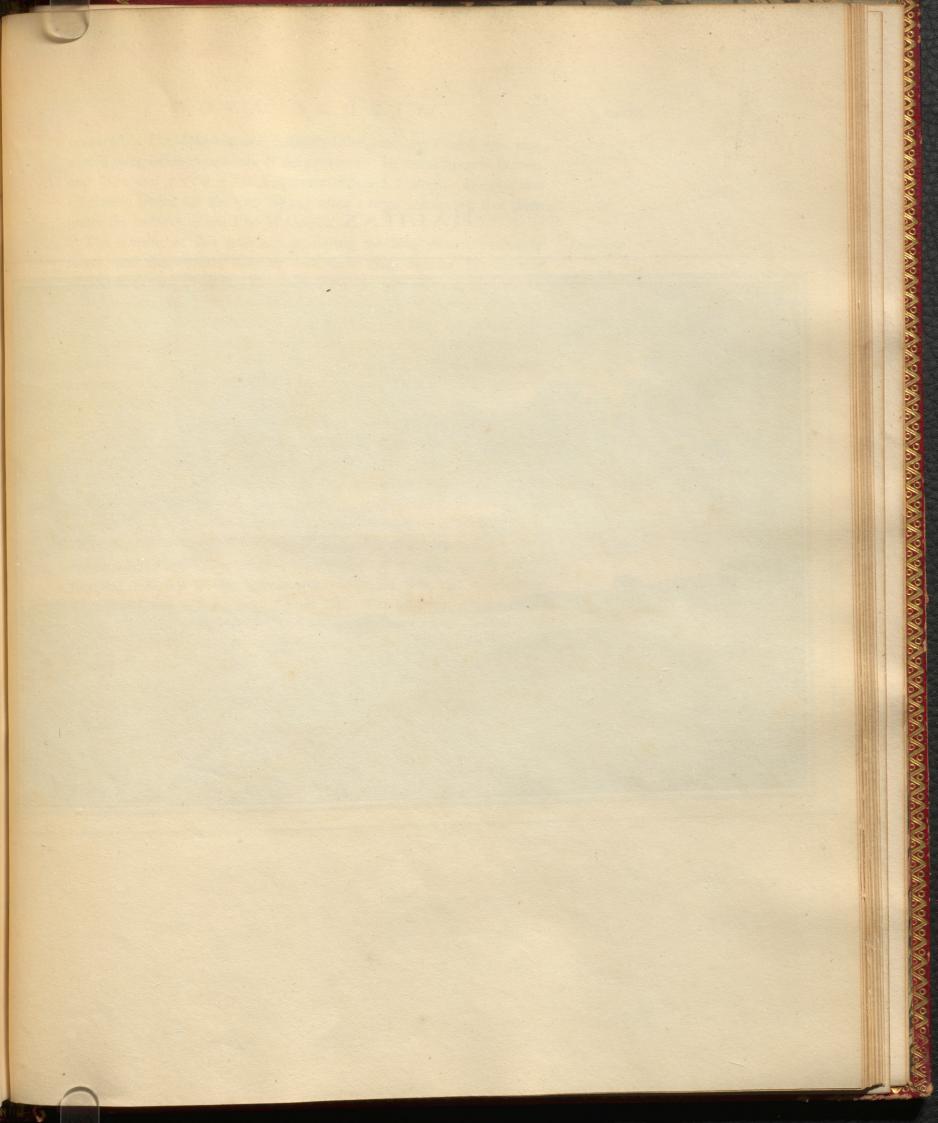
The barren island of Cape Breton forms one side of the great entrance into the gulph of St. Laurence. It is high, rocky, and dreary: rich in thick beds of coal, and may prove the Newcastle of America. This isle was first discovered by Sir Humphry Gilbert, in his fatal voyage. It was soon after frequented, on account of the Walruses, and the fishery of Whales. Among the earliest adventurers were the industrious Biscayeners, who seem to have been our masters in the art. Till of late years it had been important by being the seat of the French sishery; but the strong fortress of Louisbourg is now demolished, and the place deserted.

NOVA SCOTIA.

The great peninsula of Nova Scotia is separated from Cape Breton by a narrow streight. It was in 1616 possessed by the French, who attempted to colonize it from their new settlement in Canada; but they were soon expelled by the English, who deemed it part of North Virginia; the whole continent, at that time, going under the name of Virginia, so called, originally, in honor of our virgin queen. The French had given it the name of Acadie. James I. made a grant of the country to Sir William Alexander in 1621, on condition that he would form there a settlement. It then received the title of Nova Scotia. In order to encourage Sir William, he planned the order of baronets, which is called after the country. To every knight who would engage to colonize any part, a grant was to be made of certain portions of land. The order was not instituted till 1625, when a number were created, and they held their lands from the crown of Scotland as a free barony, with great privileges to all who would settle in the







# HALIFAX.



country\*. The defign almost instantly failed, and the French were permitted to reposses themselves of the province. Its value became known, and fince that period it has frequently changed mafters. It never was effectually fettled till the year 1749, when a large colony was fent there under the auspices of the Earl of Halifax.

The climate of this province is, during the long winter, extremely fevere, and the country covered with fnow many months: the fummer mifty and damp. The face of it is in general hilly; but can scarcely be called mountanous, being the lowered continuation of the great chain which pervades the whole continent. The ground is not favorable to agriculture, but may prove excellent for pasturage. Due attention to the breeding of cattle will not only repay the industry of the farmer, by the home confumption, but be an extensive benefit to our islands. The country cannot boast, amidst its vast forests, timber fit for large masts, nor yet for the building of large ships; yet it will prove an inexhaustible magazine for that species of timber called lumber, so essential to our sugar plantations.

Its fituation, in respect to the fisheries, is scarcely inferior to that of ITS FISHERIES. Newfoundland. The vast banks, called Sable Island's, Brown's, and St. George's, with many others, are frequented by myriads of Cod-fish. It is the duty of the Parent State to encourage, with all diligence, this branch of commerce; and in a manner so expeditious and so frugal, as may anticipate and underfell foreign adventurers. Without that, our remnants of the New World will be but of little use. The fisheries, the staples of Nova Scotia and Newfoundland, are open to other nations; and if they are permitted to excel us in expedition and frugality, our labors are truly vain. It is to the antient hardy colonists we must look up for the fupport of the toils of the fea, and the advantages we may expect to gain from them: they should have their encouragement. But there is another fet of men who of late (a public calamity) have made

CLIMATE.

\* Collins's Baronets, iv. 330.

Sf

hither

hither an involuntary migration, who with fad hearts recollect their exiled land:

> Nos Patriæ fines, et dulcia linquimus arva: Nos Patriam fugimus.

These sufferers are in general unused to the fatigues of a maritime life, and ought to be fostered, for their filial piety, at first, with a parental care; to be encouraged in the pastoral life, or in such arts as may supply the failor and the fisherman with food, and with materials for their professions. If the climate is fit for corn, for flax and hemp, let due rewards be given for the fuccessful efforts of their industry. The succeeding generation, hardened to the climate, and early habituated to another kind of life, may join the maritime adventurers, and give importance to themselves, and

strength to the island from which they sprung.

COASTS.

The coasts of this province are, in general, rude and rocky, with some variations. It is peninfulated by the Atlantic ocean and gulph of St. Laurence, and joined to the main land by a narrow ifthmus. From Bay Vert, on the northern fide, the shore is bounded with red cliffs, with beaches beneath, as far as Port Luttrel, and the fame to a remarkable high rock, called, from its shape, The Barn. Cape George terminates the coast to the east. This promontory is iron-bound, and very high, its fummit aspiring to four hundred and twenty feet above the fea. This, with Point Hood on the Cape Breton fide, forms a great bay. On the western shore, between Cape George and the entrance of the PLASTER CLIFFS. gut of Canjo, are most remarkable cliffs of plaster, lofty precipices, and extremely white.

The gut of Canfo divides Nova Scotia from Cape Breton. It is not above a mile wide: it opens into Chedabucto Bay, which penetrates far into land. Cape Canso forms the most eastern point on this side of the gut; the land trends far to the west; from Canso to Torbay breaks into feveral white rocky heads. Beaver Harbour is guarded by most picturesque isles, rounded, with wooded tops. As far as Halifax it varies, with banks

of red earth or white infulated rocks: the capes and external isles are

bounded

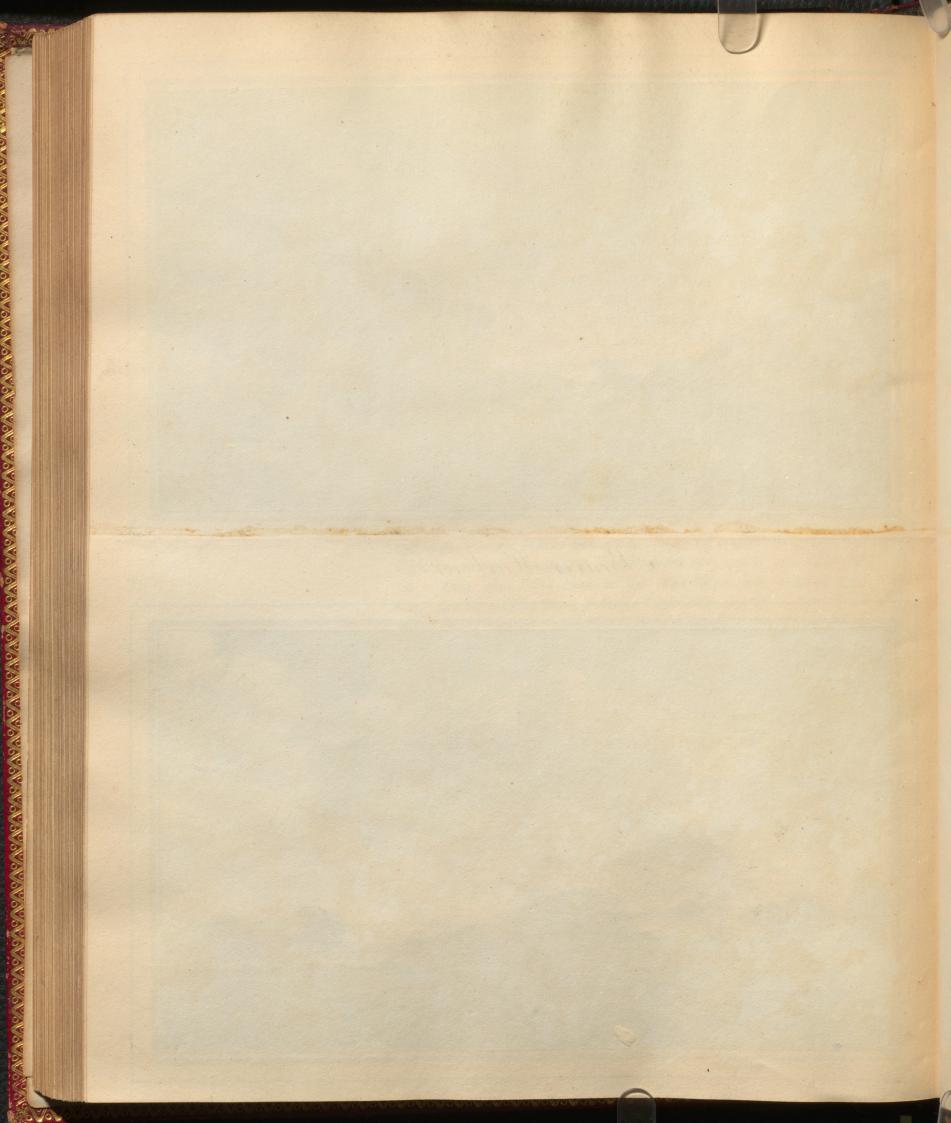
BEAVER HAR-

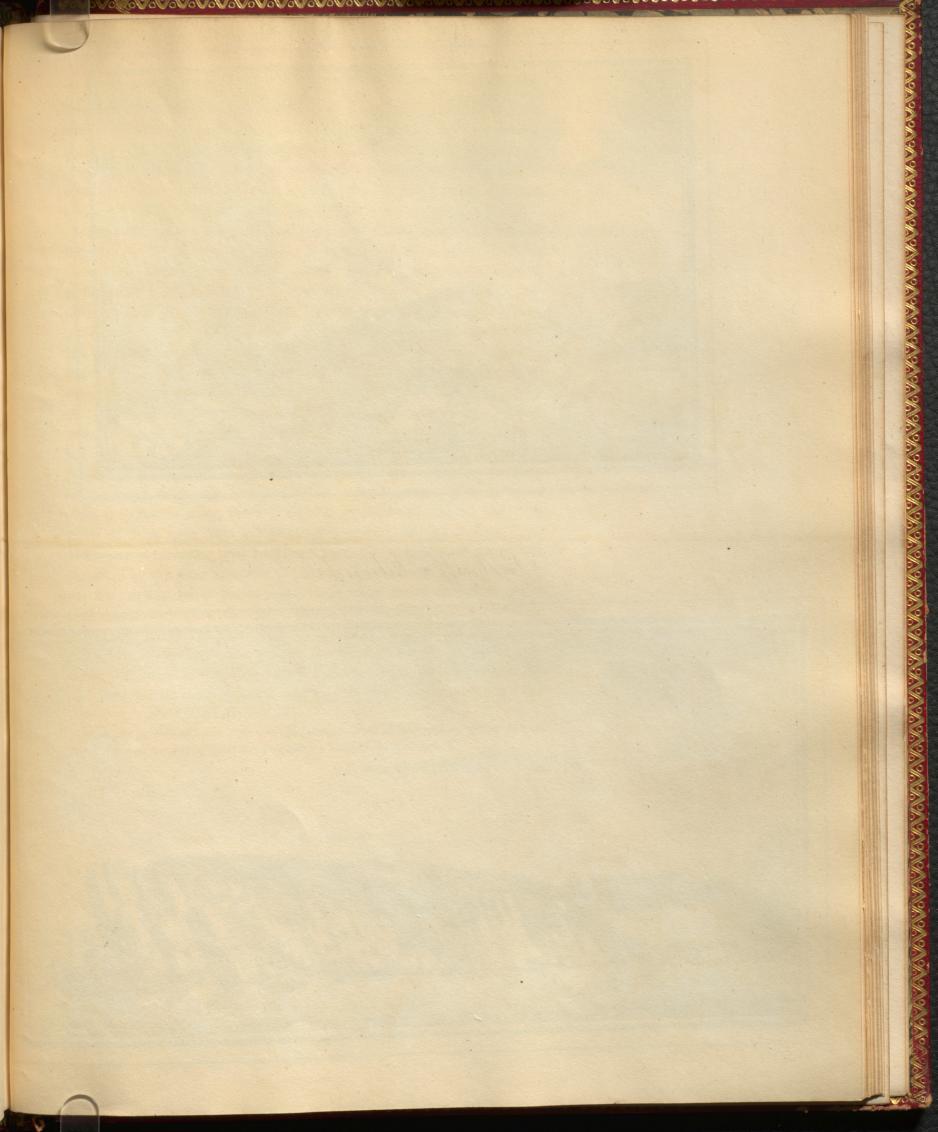
Ontrance of Grand Salsage.



· Beaver Harbour.







Visle of Valle.



Partniff Islands.



bounded with black flaty rocks, running generally out in spits from east to west, from the Rugged Islands to the Devil's Isle. Off Halifax are remarkably high red cliffs, linked with beaches: from thence to Cape Sable, an island which forms the most western extremity, is often broken, rocky, and white; but from Port Haldimand to Cape Sable the land appears level and low, with a shore of exceedingly white sand.

About twenty-three sea leagues from Cape Canso, in lat. 44, lies the ISLE DE SABLE. fingular Isle de Sable, or of Sand. It is in shape of a bow, in length about eight leagues, and not above a mile and half broad in the broadest part. In the middle is a narrow pond of fea-water, running about half the length, which is filled every tide from the fea's rushing through a little gut on the north side. This pond contains multitudes of Seals, some flat fish, Eels, &c. and has about twelve feet depth at low-water. The entrance is often choaked with fand by a strong north wind, and cleared by the next fouthern blast. This island lies on a vast fand-bank, on which the water gradually deepens to fifty fathoms. At each end is a bar: the water breaks on them often mast high; and there is, besides, a surf beating continually on the shore, to be heard in calm weather several leagues. No boats can approach the island without risque. Landing is practicable on the north shore only, and that only in calm weather. The north bar breaks, in bad weather, seven or eight leagues from the shore; and thoufands of ships have been lost about this place. M. De Barres \* was two years in surveying this fatal tract, and his services have been lately rewarded by the government of the isles of St. John and Cape Breton, under the name of that of Lunenburgh. The whole isle consists of fine white fand mixed with white transparent stones, but coarser than in the adjacent foundings: the face is much broken, and hove up into little hills, knobs, and cliffs, wildly heaped together. In the hollows are ponds of fresh water, frequented at times by variety of fowls. On the skirts grow juniper and blue berries in their feafon, and cranberries all the year. Here are

<sup>\* &#</sup>x27;To this gentleman's labors we owe the accurate charts of these and some other parts of North America, the most elegant and magnificent work of its kind extant.

no trees, but plenty of beach grass, wild pease, &c. which serve to support the horses, cows, and hogs, which run about in a state of nature. Wrecks and drift-wood afford sewel. The whole isle has a strange appearance; for the sand-hills have a conoid shape, are milk white, and some of them are a hundred and forty-six seet above the level of the sea.

BAY OF FUNDY.

I quit this fingular fpot to return to Cape Sable, just beyond which commences the great bay of Fundy, with infinite variety of picturesque and sublime scenery. The bay divides at the bostom into two others, the bay of Mines, and that of Chignetto; and, like the rest of the coast of this province, has numbers of fine harbours. Far from the shore of every part of Nova Scotia extends a skirt of sand, with deep water, and sine anchorage; but the harbours are most secure retreats. Grand Manan isle is very losty, and lies in the mouth of the bay of Fundy, nearer to the western side. The bay of St. Mary, which lies on the eastern, is guarded by an extent of land and islands; the entrances between two of them, distinguished by the name of the Grand and Petit Passage, are particularly noble, very losty, with vast mural fronts, and their tops sinely cloathed with trees.

GRAND MANAN ISLE.

WIEWS.

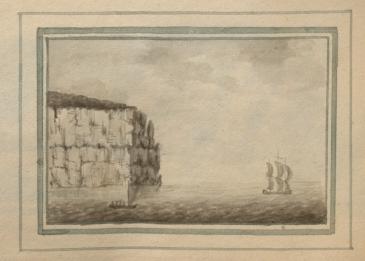
The gut or entrance into the harbour of Annapolis Royal is narrow, has not less grandeur, nor is it wholly dissimilar. The isle of Haute, which lies in the middle of the approach to the bay of Mines, rises sublime with mural sides out of the water, and is crowned with trees: from it is vast variety of beautiful scenery; such as Cape Chignesto, Cape Doré, and Cape Split; the last named from the vast columnar rocks which rise before it to an amazing height. Nearly opposite is Partridge Island, remarkable for the inclined disposition of its rocks. Cape Blow-me-down is another great precipice, not far to the east. Between these the stream of the current runs at the rate of sive or six knots, even at neap tides. The tides in parts of the bay of Fundy rise to an amazing height, and force themselves into the great creeks with a bore or head from sifty to seventy-two seet high, and with prodigious rapidity. Hogs, which feed along the shores, are much more sensible of its approach than mankind:

HIGH TIDES.

## CAPE SPLIT.

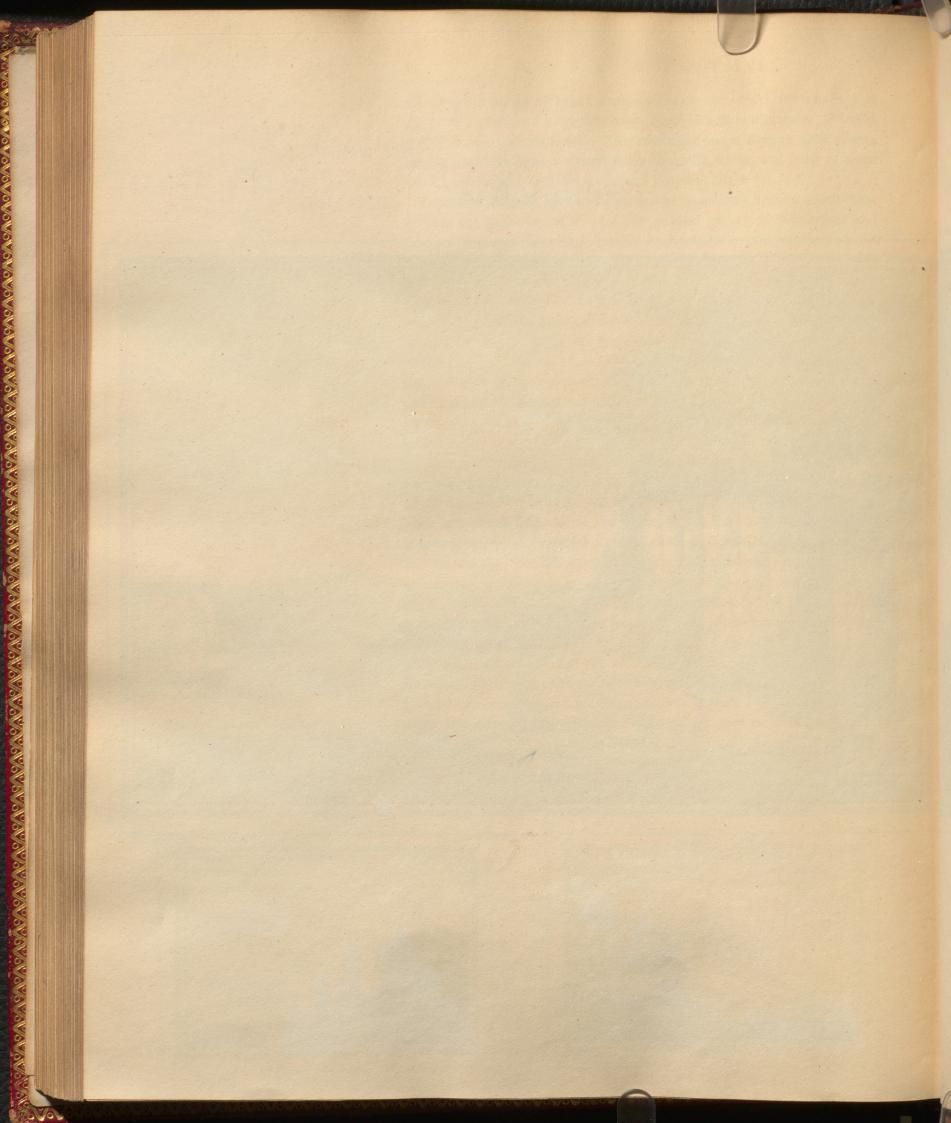


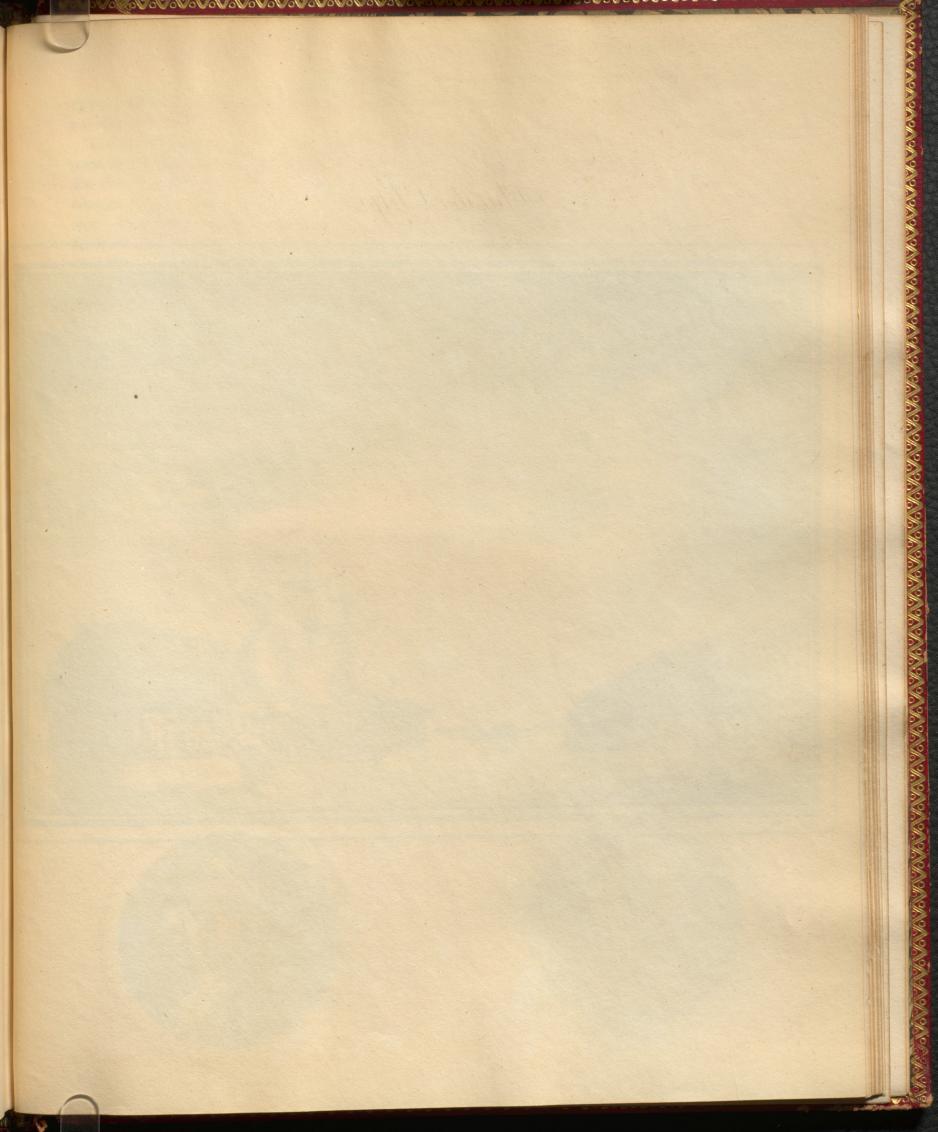
## CAPE BLOW-ME-DOWN.



FUNDY BAY.







# Plaister Oliffs.



they are observed to listen, to prick up their ears for some time, and then run off at full speed.

The bay of Chignetto is the last. This runs far inland, and is separated by the isthmus from the gulph of St. Laurence. If we reckon to Bay Vert, it is only twenty miles in breadth; but if we compute the space between Petendiac river and Shediac, on the fide of the gulph, only fourteen. From hence the shore extends to the fouth-west; and we retain as far as the river St. Croix - a wretched barren remnant of near half of the New World.—Humiliating prospect! the fad reverse of the short space of twenty years !- My eyes withdraw themselves from the mortifying sight. BRITAIN, who fate (by the wifdom of one man) as the Queen of Nations, now deplores her folly; and ought to confess, that 'those things which should have been for her wealth, proved to her an occasion of falling.' She funk under the delusion of prosperity, by false security, and the pride of victories. If the makes a proper use of advertity, the still may rife into glory and wealth, by honest industry, and by the repression of rapacity and profligate ambition.—Once more, O gracious Heaven, endeavour to fave an ungrateful people! once more raise up some great instrument to execute thy mercies !- Pour with full measure, into our youthful Minister, the virtues of his father !- Emulate, young Man, his conduct ! perfift in your glorious career! and then-

Si qua fata aspera rumpas, Tu Marcellus eris.

THE ISTHMUS.

SUPPLE-

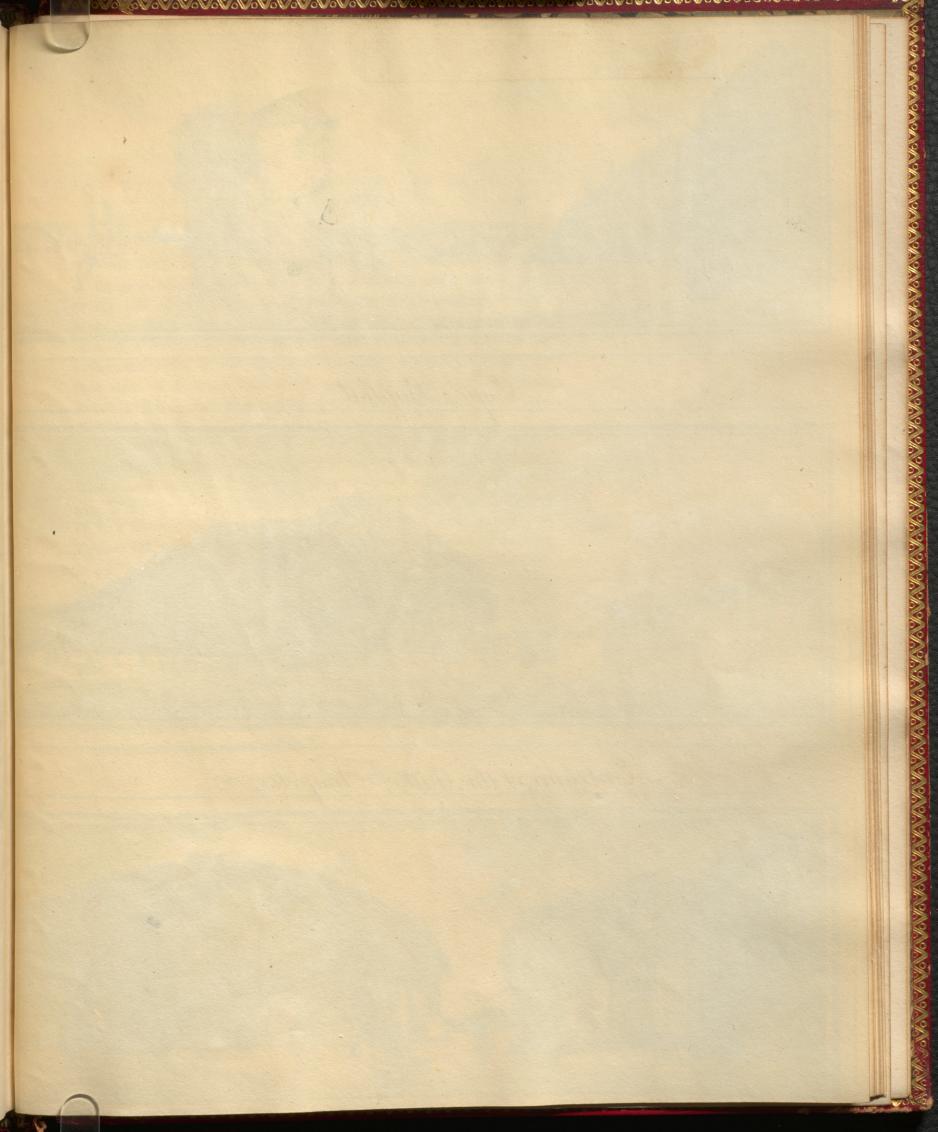


M. PITT.



E: of CHATHAM.

1112200 several Piracline niver and Shafter, on the life of the guiph, only four-Fin sure life in the system to sky rement a ballon oil it washed to





Cape Raptist.



Entrance of the Gutt of Anapolis.



# SUPPLEMENT.

IN my land travels I have never failed pointing out the places of flaughter refulting from a strife for superiority between rival nations, or the lust of power in princes, or of gain in the mercantile world, or the want of due submission to lawful government in the people, or the madness of enthusiasm, or the pride of nations too often arising from an unfortunate series of successes over neighbors destined to slourish in their turn. Providence seldom fails punishing an abuse of its favors. Britain at this moment seels the scourge, the just chastisement of its want of moderation.

I must not overlook the great naval actions of our countrymen, which often stained our narrow seas with gore. Mention may be made in this page of the sierce contest between the steet of Philip de Valois, consisting of sour hundred ships manned with forty thousand men, and that of Edward III. consisting of two hundred and sixty, commanded by the king in person. The action happened off Sluys, in June 1340. Victory declared for the English. The carnage of the enemy was prodigious, and chiesly owing to the number, skill, and courage of the English archers. Thirty thousand were killed or drowned, and above two hundred and thirty of their largest ships taken: the loss of the English very inconsiderable. This signal victory gave occasion to the noble of that monarch, by which he afferted the dominion of the sea, and sovereignty of France. He appears completely armed in the middle of a ship at sea; in his right hand is a sword, in the left a shield, with the arms of England and France; the royal standard displayed at the stern \*.

\* See Faulk's Coins, tab. 1. gold coins.

The obstinate contests on the coast of Holland, during the time of the English commonwealth, and in the fucceeding reign of Charles II. were attended with torrents of the bravest blood of both the contending nations. The Dutch fought not merely for glory, or the sweets of commerce, but latterly pro aris et focis. Delenda est Carthago was the maxim of one of Charles's ministers, which animated the Dutch to death or victory. Naval skill and desperate valour never were so strongly exhibited by any people. The combatants often fought with fleets of eighty or a hundred line of battle ships of a side, furnished with every infernal engine which the fubtlety of an animated enemy could invent. The great De Witte, foldier and statesman, first introduced chain-shot in the celebrated FIGHT OF FOUR DAYS, which ended in the defeat of the Dutch, on their own coast, on June 4th, 1666, notwithstanding we suffered so greatly by its ravages among our rigging. The Dutch commanders were De Ruyter and Van Tromp, of different factions on shore, and mortal enemies; at sea they thought only of their country. De Ruyter even faved his rival from the overpowering fire of the English; having a mind superior to the ruining of a party at home, at the expence of his country's welfare!!!

The elder Van Tromp, the glory of Holland, lost his life in a fierce engagement off the Texel, July 29th, 1653. Satiety of slaughter parted the combatants, and actual weariness. Van Tromp fell sword in hand, shot through the heart, in the very instant of encouraging his men to resist to the last moment of their lives. This was a fight of three days! this was the true period of obstinate contest.

A dreadful battle commenced off Leofstoff, in Suffolk, on June 3d, 1665, between the Dutch under the command of Opdam, and the English led by the duke of York, before a crown had deprived him of his courage: he fought with the truest and most persevering bravery. The battle proved decisive. Opdam's ship was blown up: three Dutch admirals, besides him, were killed. It is said that the victory would have been more brilliant, but that during the night of pursuit, after the engagement, orders were pretended, in the duke's name, to slacken sail: they were unfortunately obeyed,

obeyed, and the total destruction of the Dutch sleet prevented. This affair was ill enquired into: but not the lest imputation sullied the character of his highness. We might be content with the victory. The Dutch lost thirty ships: eight thousand men were taken. We lost but one ship, and had only eight hundred men killed or wounded. Many persons of rank were slain on board our sleet. The earl of Falmouth, a worthless savorite, Lord Muskerry, and Mr. Boyle, of the noble family of Burlington, were killed on the quarter-deck by one shot; and the duke was covered with their gore, and even hurt by their splinters. James Ley, earl of Marlborough, and Charles Weston, earl of Portland, sell in the action: the veteran admiral Lawson died soon after of his wounds.

On May 28th, 1672, a furprize of the duke of York by De Ruyter, in Southwould, alias Solebay, on the same coast, brought on a battle, sustained on both sides with unparalleled valour and obstinacy. The Dutch had the disadvantage, but nothing decisive followed, yet the death of the earl of Sandwich, second in command, would have cast a gloom over the greatest victory. This nobleman possessed the highest character of any of his time, for courage, abilities, munificence, and goodness. He fought in the Royal James, of a hundred guns; slew Van Ghent, a Dutch admiral, and beat off his ship; sunk another great ship; sent to the bottom two of the enemy's sire-ships. Five hundred men (half of his crew) lay on the decks weltering in blood. A third sire-ship succeeding, this illustrious hero was drowned in attempting to save himself; and his ship was blown up, with the remainder of his gallant companions. His body was found, and all due honors payed to it by his lamenting sovereign and grateful countrymen.

IN about lat. 53, I may draw a line from the North Sea to the opposite part of the kingdom, which will comprehend a small part of the north of Norfolk, the greater part of Lincolnshire, Nottinghamshire, Derbyshire, the moor-lands of Staffordshire, all Cheshire, Denbighshire, Flintshire, T t Caernarvonshire,

#### PLANTS.

Caernarvonshire, and Anglesey. Beyond this line nature hath allotted to the northern part of these kingdoms certain plants, of which I am about to make an enumeration, which are rarely or never found to transgress that line to the south. Those which are nearest the south shall be first taken notice of.

Galeum boreale. Fl. Angl. i. 70. Fl. Scot. i. 116 \*.

Pulmonaria maritima.

Ribes alpinum.

Athamanta meum.

Juncus triglumis.

Rumex Digynus.

Vaccinium vitis Idæa.

Polygonum viviparum.

Saxifraga nivalis.

stellaris.

oppositifolia.

autumnalis.

Arenaria verna. Tour in Wales.

fericifolia.

Cerastium alpinum.

latifolium

Prunus Padus.

Rosa villosa.

Rubus chamæmorus.

Papaver cambricum.

Ajuga pyramidalis.

Draba muralis.

incana.

Thlaspi montanum.

Brassica momensis.

Cardamine

I refer the reader for the English names to Mr. Hudson's Flora Anglica, and Mr. Light-foo's Flora Scotica.

Cardamine petræa.

Serratula alpina.

Carduus helenoides.

Lobelia Dortmanna.

Viola grandiflora.

Satyrium albidum.

Carex atrata.

Salix herbacea. Only on mountains; is found high on Snowdon.

reticulata.

Rhodiola rosea.

Ofmunda crifpa.

Acrostichum septentrionale.

Ilvense.

The following catalogue is of plants, which in our island seem to affect still more northern situations, or I may say are not found to the south of Yorkshire; and, respecting Great Britain, a sew seem to be nearly local.

Cynofurus cæruleus.

Cornus herbacea.

Alchemilla alpina.

Primula farinofa.

Azalea procumbens. In Scotland only.

Selinum palustre. Inclines to the southern part of this class.

Ligusticum Scoticum. Scotland only.

Sibbaldia procumbens. The fame.

Trientalis Europea.

Vaccinium uliginofum.

Pyrola secunda.

Andromeda polyfolia.

Arbutus uva ursi. Not farther south than the woods near Hexham; again not till we reach Peebles, Rossshire, and the isle of Skie.

alpina. In Scotland only.

Tt 2

Saxifraga

Saxifraga cæspitosa.

Stellaria nemorum.

Cherleria sedoides. Breadalbane and Baikeval, in the isle of Rum.

Sedum villofum.

Rubus faxatilis.

Dryas octopetala. Found in Scotland and Ireland only.

Actæa spicata.

Gnaphalium fupinum. Omitted in the Flora Scotica, having been discovered after the publication. In the north of Scotland.

Satyrium repens. In the north of Scotland.

Ophrys corallorhiza. The fame.

cordata. Yorkshire, Lancashire, Isle of Man, and Scottish highlands.

Cypripedium calceolus. Near Ingleton and Clapham, in Yorkshire.

Ericaulon decangulare. In the ifle of Skie only.

Betula nana. From Clydesdale to Rossshire.

Pinus fylvestris. At present native only in the Scottish high-lands.

It is to be remarked, that notwithstanding none of these plants are to be discovered in *Great Britain*, south of the line above drawn; yet most if not all of them are to be found in very southern latitudes on the continent. Numbers are inhabitants of *Provence*, and other warm provinces in *France*\*. Is it owing to similitude of soil, or of exposure, in dissimilar climates, which should occasion in different places the production of the same plants? Or what should forbid the growth of similar plants in places nearly contiguous, and occasion their appearance almost instantly on a neighboring spot? Without reminding one of the question put by the wifest of men on a like embarrassment:

\* See Lamark's FLORE FRANÇOISE.

#### ERUPTION IN ICELAND.

CCCXXI

Why should one earth, one clime, one stream, one breath, RAISE this to strength, and sicken that to death \*?

Almost every one of these plants is again found in a climate very oppofite to the mild provinces which border on the *Mediterranean* sea; for there is scarcely one which I have enumerated which is not met with in Sweden, or in Lapland, and some even in the distant Iceland †.

I HERE introduce a very curious account of the eruption of fire in *Iceland*, mentioned in page LXII, translated from the *Danish* account of Mr. Magnus Stephensen, and communicated by the friendship of the ingenious the late Mr. John Whitehurst.

# AN ACCOUNT OF THE ERUPTION OF FIRE IN ICELAND.

UPON the 1st of June, 1783, there was observed a trembling or shaking of the earth, in the western part of the province of Shaptarfiell, which increased more and more until the 11th. It was so great that the inhabitants were under the necessity of quitting their houses, and lying at night in tents upon the open ground. All this time there was observed a continual smoke or steam arising out of the earth, in the northern and uninhabited parts of the country. Three fire-spouts broke out, of which that in the north-west was the greatest; one of these spouts broke out in Ulfarsdal, a little to the east of the river Skapta; the other two were a little west of the river Hwerssslist These three fire-spouts,

after.

<sup>\*</sup> A question put by Prior in the mouth of Solomon, in his first book.

<sup>+</sup> See the catalogue of Iceland plants in vol. ii. of Olaffen's and Powelsen's journey in Iceland.

after they had rifen to a confiderable height in the air, were collected into one stream, which rose so high as to be seen at the distance of 34 miles\*, and upwards. The whole country, for double that distance all around, was continually covered with a thick smoke and steam not to be described.

The 8th of June gave sufficient notice of the above-mentioned fire-fpouts breaking out, for upon that day the fire became visible. It was mixed with prodigious quantities of brimstone, fand, pumice-stones, and ashes, which, being thrown up with great force, noise, and shaking of the earth, were scattered in the neighborhood of the spouts; and a part of them being blown about by the wind (which at that time was very high) all over the country, fell in the fields, villages, and towns, at a considerable distance. The whole atmosphere was filled with sand, dust, and brimstone, so thick as to occasion a continual darkness. The pumice which fell in the villages, being red hot, did considerable damage. Along with the pumice-stones there fell a great quantity of a dirty substance like pitch, rolled up sometimes in the form of small balls, and sometimes like rings or garlands. The falling of these hot substances was attended with great mischief, as they totally destroyed all manner of vegetation that they came near.

Upon the third day of this dreadful shower, the fire became very visible, and came out sometimes in a continued stream, and sometimes in slashes or slames, which were seen at the distance of 30 or 40 miles, accompanied at the same time with a noise like thunder: this continued the whole summer. Upon the same day that the fire first broke out, there sell a very great quantity of rain in all that neighborhood, which did almost as much harm as the fire; inasmuch as the great quantity of cold water, that ran in vast streams upon the hot ground, tore up the earth in large cakes, and carried it down into the lower situations: besides, the water of this rain

<sup>\*</sup> The reader will observe, that the distances mentioned here are in the measure of Danish spiles, twelve of which make one degree; so that each Danish mile is nearly five and three quarters of our statute miles.

was ftrongly impregnated with falts of different kinds, and fulphur, which it had acquired in falling through the immense cloud of smoke before defcribed; and was fo sharp and poisonous as to occasion a considerable fmarting, if it fell either upon the hands or face. At a greater distance from the fire there was a great coldness in the atmosphere; and in some places there was a very heavy fall of fnow, fo that it lay upon level ground about three feet deep; in others fo great a quantity of hail, as to do very confiderable damage to the cattle, and every thing that was out. The grafs, and all manner of vegetables, which were already fcorched by the heat, fand, and pumice-stones, were covered over with a thick crust of brimstone and sooty matter. The great heat of the streaming fire, meeting with fo large a body of water, occasioned such a vapour and steam in the air, as to darken the fun, which appeared like blood \*, and the whole face of nature feemed to be changed. This lasted several days, the fand and pumice-stones destroying all the crops that were upon the ground, the moment that they fell, burning up every thing that they touched: the whole country was laid waste, the cattle dying for want of food; and the furviving or escaping inhabitants flying from the horrid scene, betook themselves to other parts of the country, where they might hope for fafety, and left all their flock and goods a prey to the outrages of these two turbulent elements.

When the fire first broke out, there was a very considerable increase of water in the river Skapta, upon the east side of which one of the fire-spouts was situated, as was mentioned above: a similar overslow of water was observed, at the same time, in the great river Piorsa, which runs into the sea a little to the eastward of the town Orebakke, and into which the river Tuna, after having run through a large tract of barren and uninhabited land, empties itself.

Upon the 11th of June the river Skapta was totally dried up in less than twenty-four hours, and the day following a prodigious stream of liquid.

<sup>\*</sup> In the same summer the sun had a similar appearance in Great Britain, and the same obscurity of air reigned in most parts of our island.

and red hot lava, which the fire-fpout had discharged, ran down the channel of it, which is very deep, having large rocks and high banks on each fide, the whole length of its course. This stream of lava not only filled the deep channel above mentioned, but overflowing the banks of it, fpread itself over the whole valley, covering all the low grounds in its neighborhood; and not having any fufficient outlet to empty itself by, it rose to a very great height, and over-ran all the neighboring country, infinuating itself between the hills, and covering fome of the lower ones. The hills here are not continued in a long chain or feries, but are feparated from one another, and detached; and between them run little rivulets or brooks: fo that, besides filling up the whole of the valley in which the river Skapta ran, the flery stream spread itself for a considerable distance on each fide, getting vent between the above-mentioned hills, and laying all the neighboring country under fire. The fiery lake, getting fresh and greater supplies from the spouts, now ran up the course of the river, and overflowed all the lower grounds above; and, as it proceeded upwards, it dried the river, until the stream was stopped against the side of the hill from whence the river takes its rife. The lava now rose to a prodigious height, and the fiery lake overflowed all the village of Buland; the church, houses, and every thing in its way being confumed: those who knew the fituation of this village, upon what high ground it flands, would be aftonished to think that it could have been overflowed. Two other farm-houses in the same parish of Buland, at about a mile and an half from the village, northward, were likewife destroyed, and three lives lost in both of them. The whole of this parish, which was highly cultivated land, is now totally demolished. The fiery lake still increasing, and fpreading itself out in length and breadth, overflowed all the country for fix miles in width. When all this tract of land was converted into a fea of fire, the lava stretched itself towards the fouth; and getting vent through the channel of the river Skapta, down which it rushed with great impetuofity (being confined within the narrow compass between the high banks before described, for about a mile) it came into a more open place, where

where it poured itself forth in prodigious torrents with amazing velocity and force; spreading itself now towards the south, tearing up the earth, and carrying along with it on its surface staming woods, and whatsoever it met with: in its course it laid waste another large district of land. The ground wherever it came was broke and cracked, and emitted large quantities of smoke and steam long before the fire reached it; so great was the heat: and every thing near the edge of the fiery lake was either burnt up, or reduced to a shuid state. In this situation matters remained from the 12th of June till the 13th of August. The fiery lake now no longer spread itself, but remained burning nevertheless; and when any part of the surface by cooling was crusted over, the fire from below broke the crust, which tumbling amongst the melted substance, was rolled and tossed about with a prodigious noise and crackling; and in many parts of its surface small spouts, or at lest ebullitions, were formed, which continued for some length of time.

The river Skapta, that we have talked fo much about, is fituated on the north and north-west sides of the province of Sidu; it takes its rise in the north-east, and running first westward, it turns to the fouth, and falls into the fea in a fouth-east direction. The confined part of its channel, that we have before made mention of, is an uninterrupted stretch of about four miles in length; being in some places 200 fathoms deep (as in the neighborhood of Swartanup, where the river cuts through a hill), in others 150 or 100; and in some parts 100, in others 50, 40, and 30 fathoms broad. Along the whole of this part of its course the river is very rapid, though there are no considerable cataracts or falls above two feet high. There are feveral other fuch confined channels as this in other parts of Iceland, but this is the greatest and most considerable in all its dimensions. This channel was filled to the brink, and from thence the lava spread itself over the village Skaptardal, confumed the houses and every thing in its way, and destroyed the woods and meadow lands: this place is fituated on the east of the river, upon a rising ground. The stream then went forwards to the fouth, by the village marked A, which is at the fouth end of the narrowest Uu

narrowest part of the channel, and stretched itself between two hills to the eaft. The whole of this village, with all its meadow and wood lands, was also totally destroyed. Upon the 12th of June, the lava having run through the narrow part of the channel, and obtained an outlet, it stretched itself out in breadth towards the south-west, as far as the east side of the hills in the province Skaptartunga; and also to the west side of Sidu, and the fouth-west of Medalland towards the east. Just as the lava begun to overflow this flat country, and had got out of the channel of the river, the perpendicular height of its edge was 70 fathoms. Proceeding now fouthwards, the lava destroyed the church and town of Skal, and all the neighboring grounds: in this place a prodigious noise was heard when the lava overspread the low lands, and noises like thunder have continued ever fince, till the 12th of August. It then came to the village of Swinadalur, which lies in a fouth-west direction from Skal; and having with a corner destroyed that, it was stretched out farther to the west, and over-ran the village of Hvammar, which stands on a pretty high rising ground on the west side of the river; but before the fire had reached these two villages, they were both overflowed with the water that had been turned out of its course by the lava damming up the river when it first came into the channel. Proceeding forward, the lava overflowed the village Nez, and all the grounds belonging to it: from thence it came to Villungar, and turning more fouthwardly, came near to the village Leidvôlla; a little to the north of which, after having destroyed a great quantity of grass land and wood, it entered into the channel of the great river Kudafhôt; and kept a fouth course along the east side of it till it came down near to the village of Hraun, where this branch stopped. A little above the place where this arm went into the channel of the river Kudafliot, a corner of the lava stretched itself out to the fouth-east, and came to a place called Eystribrun, east of Hraun. From Skal, which we mentioned just now, the lava taking an eastward direction, ran by the fide of a hill called Holtfiall, and destroyed the village Holts, which stood upon a fine level ground, and was furrounded with very rich corn and pasture land. Proceeding eastward,

ward, it came to a village called Heid; and destroying a quantity of meadow land and wood belonging to that village, it went on down the river Skapta, between the two hills Heilderstapa and Dalbærstapa, which lie on each fide of the river, and destroyed the villages Hunkabakke, Holmur, and Dalbear; and proceeded on eastward towards the village Nyibear, within a hundred yards of which it stopped. In this course there is a very great cataract of the river Skapta, about 14 fathoms high, where the lava falling down, was thrown about, together with the stones which it tore up, to a very considerable distance. From Dalbear the stream of lava went fouthward, over that large tract of land called Hrauns-melar, quite down to Efristeins-myri, the edge of it to the east passing by Lutandabals, Lutandasit, and Rofa. In paffing over this broad tract of land the fire did confiderable damage, for the whole was good and rich meadow and pasture land. The stream of lava went within 30 fathoms of Efrifteins-myri, on the west; and falling into the channel of the river Steins-myrifliôt, which is among the larger ones, it filled the whole valley between Efrifteins-myri and Sydrifteins-myri, going on in an eastward direction: these two villages are totally destroyed, although the edge of fire only approached within 100 fathoms of them. The main body of the lava from this place went in a fouth-west direction, and came to the village Hnauser; which, although it was not destroyed by the fire, yet was overflowed by the water of the two rivers Steins-myrifliöt and Fegdaquist being dammed up. Here the lava ftopped on the fouth; and its edge goes all the way from Eystribrun before mentioned, north of Stadarbolt, to Strandarbolt. In this neighborhood the lava destroyed five villages; namely, Holmasel, with its church; Botna, Holma, Efrisliota, and Sydrisliota; besides a great quantity of corn and meadow lands, with woods, and other property belonging to the villages fouthward.

The spouts still continuing to fend forth immense quantities of fresh lava, and all the passage to the south or low lands being shut up, the lava fpread itself to the north and north-east, over a tract of land eight miles long and fix broad. All this place is barren and uninhabited, so that no

observations Uu 2

observations were made how the fiery stream proceeded; all we know is, that it dried up the rivers Tuna and Axafyrdi. The lava, on account of the high hills on the east of Hwerfisfliot, could proceed no farther in an eastward direction; for these hills form a continued chain for three miles in length, running in a direction north and fouth. There was then no other outlet for the lava than the channel of the river Hwerfisfliot: this branch broke out from the main body about a quarter of a mile north of Ytridalur and Eystridalur, two villages situated opposite to each other, on each fide of the river: the lava running between thefe two villages, followed the course of the river, and passed between two others, Therna and Selialand, about a mile lower down; coming then into an open and level ground, it spread itself out, and formed a small lake of fire, about two miles long and one broad; lying in a direction a little westwardly from the fouth. The only damage done by this branch was the destruction of the corn and grafs land, and fome wood; no villages having fuffered. Upon the 16th of August this branch stopped.

It appears then, from the whole, that the utmost extent of the ground covered with lava, and making the appearance of a fiery lake, was fifteen miles long, and seven broad, in its utmost extent. The edge of it, reckoning all that part south of Buland, with all its inequalities on the south side, is upwards of thirty miles long; what it may be on the north is not known, as nobody chuses to venture himself near that part as yet. The perpendicular height of the edge is from 16 to 20 fathoms, so that wherever it came it covered every village it met with, as well as several hills; and those which, on account of their great height, it did not cover, were melted down by it, so that the whole surface was in a fluid state, and formed a lake of fire, in appearance like red hot melted metal.

The whole number of villages totally destroyed are 20 or 21, either by the fire or the water overflowing them. About 34 are very materially hurt, having their lands and woods burnt up; but most of them may be furnished with fresh ground being taken up in their respective neighborhoods.

borhoods. Besides villages, there are seven parish churches and two chapels destroyed. In the whole there were 220 lives lost by the fire, and 21 by water. The rivers that were dried up are twelve; namely, Tuna, Axafardi-Hwerfisfliot, Skapta, Steins-myrifliot, Landa, Melquist, Green-lackur, Tungu-lacker, Fedaquist, Kararvikarsb-urdur, and Hraunsa.

Besides this immense fire, there happened two other circumstances that are equally wonderful. Two islands have been thrown up. One of these was thrown up in the month of February 1784, where there was before upwards of 100 fathoms deep water; it lies about fixteen miles from the land, fouth-west from Reikianese in Iceland, and about eight miles from the cluster of islands called Gierfugla. By the last accounts this island continued burning with great vehemence, and fent forth prodigious quantities of pumice, fand, and other matters, fimilar to other burning mountains. The island is somewhat above half a mile in circumference, and full as high as the mountain Efian in Iceland. The other island is at a greater distance from Iceland to the north-west, lying between Iceland and Greenland: it has burnt without intermission, day and night, for a considerable time, like the other; is very high, and larger in circumference than the other. - The account of this island is taken from the report of certain masters of ships, but is not so well authenticated as the former.

We have also some very indubitable accounts, partly by the relation of failors, and partly by letters from Trondbeim in Norway, that before the fire broke out in Iceland, there was a very remarkable eruption in the uninhabited parts of Greenland; and that in the northern parts of Iceland, opposite to Greenland, the fire was visible a vast while. These accounts were strengthened by a letter from Iceland, bearing date the 21st of September; which fays, that when the wind was north there fell a great quantity of ashes, pumice, and brimstone, upon the north and west coasts of Iceland; and that this continued for the whole fummer, whenever the wind was in that quarter; and that the air was always very strongly impregnated with a brimftone fmell, and thick fmoke.

But

But to return to Iceland. Ever fince the first breaking out of the eruption, the whole atmosphere has been loaded with smoke, steam, and fulphureous vapours. The fun became at times wholly invisible, and, when it could be feen, was of a reddish or bloody colour. The fisheries were most of them destroyed; for the banks where the fish used to be, were so shifted and changed, as not to be known again by the fishermen; and the smoke so thick, as to prevent them from going far out to sea, for there was no feeing any object at above the distance of fifty fathom. The water of the rain falling through this fmoke and steam, was so impregnated with falt and brimstone, as to destroy the hair, and even the skin, of the cattle; and all the grass in the whole island was so covered with the sooty and pitchy matter before described, that the most of it was destroyed, and, what was left was fure poison for any cattle that eat of it; so that those which escaped the fire died for want of food, or were poisoned by the unwholefome remains of the vegetables. Nor were the inhabitants, in many respects, more free from dangers than the cattle. Many lost their lives by the poisonous quality of the smoke and steam of which the whole atmosphere confifted; particularly old people, and fuch as had any weakness or complaint of the breast and lungs,

During the fall of the sharp rain which we have before made mention of, there was observed at Trondheim, and at other places in Norway, and also at Faroe, an uncommon fall of sharp and salt rain, which was so penetrating that it totally destroyed the leaves of the trees, and every vegetable it fell upon, by scorching them up, and causing them to wither. At Faroe there fell a considerable quantity of ashes, sand, pumice, and brimstone, which covered the whole surface of the ground whenever the wind blew from Iceland; and the distance between these two places is at least eighty miles. Ships that were failing between Copenhagen and Norway were frequently covered with ashes and brimstone, which stuck to the sails, masts, and decks, besmearing them all over with a black and pitchy matter. Many parts of Holland, Germany, and other countries in the north, observed a brimstone vapour in the air, accompanied with a thick smoke;

and

and there fell in some places a light grey-colored substance upon the earth every night, which, by its yielding a blueish flame when thrown on the fire, evidently appeared to be sulphureous: upon those nights in which this substance fell in any quantity, there was observed to be little or no fall of dew. These appearances continued more or less all the months of July, August, and September.

A more particular account of these appearances, and the periods when they were observed, are published in the Berlin Advertiser, N° 96, 1783, and the following numbers, in some of which there is a very accurate account of the two islands that were thrown up; but I have not seen them.

I shall conclude with giving you a catalogue of all the known eruptions in Iceland.

- 1. Date lost. Ildborger braun.
- 2. 1000. Thurrar braun.
- 3. 1004. Heckla, for the first time.
- 4. 1029. Ditto, fecond time.
- 5. 1105. Ditto.
- 6. 1113. Ditto.
- 7. 1151. Trolledynger.
- 8. 1157. Heckla.
- 9. 1188. Trolledynger.
- 10. 1206. Heckla.
- 11. 1210. Reikenese.
- 12. 1219. Ditto.
- 13. 1222. Heckla.
- 14. 1222. Reikenese.
- 15. 1223. Ditto.
- 16. 1225. Ditto.
- 17. 1226. Ditto.
- 18. 1237. Ditto.
- 19. 1240. Ditto.

20. 1245.

#### ERUPTIONS IN ICELAND.

- 20. 1245. Soelbeim fockul.
- 21. 1262. Ditto.
- 22. 1294. Heckla.
- 23. 1300. Ditto.
- 24. 1311. Roidekambe field.
- 25. 1332. Knappefelds Jockul.
- 26. 1340. Heckla.
- 27. 1359. Trolledynger.
- 28. 1362. Knappefelds fockul.
- 29. 1366. Lillebered.
- 30. 1374. Heckla.
- 31. 1390. Ditto.
- 32. 1416. Hofde Jockul.
- 33. 1422. Reikenese.
- 34. 1436. Heckla.
- 35. 1475. In the north part of the island.
- 36. 1510. Heckla.
- 37. 1554. In the neighborhood of Heckla.
- 38. 1587. Thingvalla.
- 39. 1619. Heckla.
- 40. 1625. Myradalur.
- 41. 1636. Heckla.
- 42. 1660. Myrdals Jockul.
- 43. 1693. Heckla.
- 44. 1721. Kattlegiàa.
- 45. 1725. Leermicks, Hithoel, and Bjarnaflaeg.
- 46. 1725. Krafte.
- 47. 1727. Myrdal and Leermick, and Hroffedall.
- 48. 1728. Reibeklider and Myrvatn.
- 49. 1755. Kattlegiàa.
- 50. 1766. April 15. Heckla, to Sept. 7.
- 51. 1771. June 13. Ditto, three weeks.

ARCHITHINUES, INDIANS.

CCCXXXIII

#### OF THE ARCHITHINUES INDIANS,

TAKEN FROM THE JOURNAL OF A TRADER FROM HUDSON'S BAY.

SUNDAY.—Fine weather, wind W. Travelled S. W. by W. 15 miles. Level land, and ledges of small woods. We were joined by seven Archithinues on horseback, who informed us that we should see the great Leader and numbers of the Archithinues to-morrow. Indians killed several Buffaloes; they are numerous all round us.

Monday.—Fine weather, wind N. E. Travelled S. W. by W. four miles; then came to us 40 men on horseback; they told us they were sent from the main body, to enquire whether we were friends or enemies. We told them we were friends. Atickofifb, Connawappaw, Cocamanakifick, and the rest of the leaders, walked in the front about four miles further. Then we came to two hundred tents of Archithinues Indians, pitched in two rows, and an opening in the middle; where we were conducted to the Leader's tent, which was at one end, large enough to contain fifty people, where he was feated on a clean Buffalo's skin, attended by twenty elderly men. He made figns to me to fit down on his right hand, which I did. Our leaders fet on feveral grand pipes, and smoked all round, according to their usual custom. Not one word was yet spoke on either side. Smoking being done, Buffalo flesh boiled was handed round in willow baskets, and I was presented with ten Buffaloes tongues. Atickosish then informed him, that I was fent by the great leader, who lives down at the great waters, to invite his young men down to fee him, and to bring with them Beaver and Wolves, and they would get in return powder, shot, guns, and cloth, &c. He made little or no answer, more than that it was far off, and that they could not paddle; then they entered upon indifferent subjects, until we were ordered to depart to our tents, which were ready pitched about a quarter of a mile from them.

Tuesday.—Fine weather, wind S. E. Froze a little last night. Women employed dressing Beaver skins for cloathing. At ten o'clock I was in-

1754. OCTOBER 13.

14.

15.

EXPORTS

vited to the Leader's tent, when, by an interpreter, I told him what I was fent for, and perswaded him to allow me to carry down some of his young men to the fort, where they would get guns, powder, and shot, and be kindly used; he made answer, it was far off, and that they could not live without Buffaloes flesh; and that they never would leave their horses; and mentioned many more obstacles, which I thought was very just; the chief of which was, that they never wanted provisions. He made me a present of a handsome bow and arrows; and in return I gave him a knife, four strings of beads, and feveral other forts of trading goods that I had with me; fo departed and took a view of the camp. Their tents were pitched close one to another, in two regular lines, which formed a broad street, open at both ends: the horses are turned out to grass, their legs being fettered; or, when wanted, are fastened to lines cut off Buffaloes skin, that stretches along, and fastened to stakes drove in the ground; they have hair halters, Buffalo skin pads, and stirrups of the same. The horses are fine spirited creatures, about fourteen hands high, the largest, and tractable; the natives are good horsemen; and kill the Buffaloes on them. These natives are dressed much the same as the others, but more clean and sprightly: they think nothing of my tobacco, and I think as little of theirs, which is dried horse-dung: they appear to be under proper discipline, and obedient to the leader, who orders a party of horsemen morning and evening to reconnoitre, and other parties to bring in provisions. They have other Indians beyond them, who are their enemies; they are also called Archithinues; and, by what I can learn, talk the same language, and have the fame customs, &c. They are, like the rest of the natives, murdering one another flyly. Saw feveral pretty girls that had been taken in war; and many dried scalps with long black hair, disposed on long poles round the Leader's tent. They follow the Buffalo, and, that they may not be furprised by the enemy, encamp in open plains. Their firing is turf, and dried horfe-dung: their cloathing is finely painted with red paint, like unto English red oker; but they do not mark nor paint their faces. employed dreffing Beaver It ins for cloathing. At ten o'clock I was in

EXPORTS

# EXPORTS from Archangel, 1780, in 126 Ships.

	60 % 04 - 1	00 0 6 1 7 %	
Rye, Tchetvert -	10,624	Soap, Poods -	6
Wheat, D.	- 58,239	Tar, Barrels *	89,215
Linfeed *, D.	63,191	Train-oil, D°	4,901
Tallow *, Pood	159,137		807,290
Hemp *, D°	39,066	D°, Bags, D°	47,450
Iron *, D	31,976	Horse-tails, D°	94
Briftles *, D° -0 -	4,533	Hare-skins*, D°	26,445
Bees-wax *, D° -	346	Cat Dº	3,970
Tallow-candles, D° -	12,500	Bear D°	10
Hides, D°	10,091	Swan D°	356
Cordage, Do	1,060	D' wing, p'	252
Castoreum	1:3 W	White Fox-skins, Pieces -	4,955
Linseed oil, Pood -	1,140	Squirrel-skins, D°	110,610
Horse-manes *, Pieces	2,454	D° tails, D°	42,000
Tobacco, Poods -	738	Hare furs	210
Rye-meal, D°	598	Ox tongues *	1,000
Agaricum	135	Linen bags	500
Pitch *, Pood	131,881	Sail-cloth	1,000
Flax, D°	3	Diaper, Arschines -	58,612
Isinglass *, D° -	Electrical Control of the Control of	Linen, D°	1,529
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		- S - C - S -	

<sup>\*</sup> These articles to England, in common with other countries.

GOODS Exported from St. Petersburg in 1780, to Great Britain and Ireland.

	1	1					
Iron. Pood *. 1,777,411	Clean Hemp. Pood. 810,982	Out Shot.  Pood. 96,786	Half clean. Pood. 32,986	Hemp codille.  Pood. 21,101	Flax. Pood. 153,762	Hides, and SoleLeather.  Pood. 220	Hare-skins. Pieces. 76,024
Tallow. Pood. 379,982	Wax. Pood. 2,188	Briftles. Pood. 15,348	Ifinglass.  Pood. 1,939	Tobacco.	Candles.	Tar. Poods. 16,040	Broad and narrow Diaper.  Arfchines. 489,885
Sundry furs, Squirrel, Fox, and Weafel.	Horfe-tails.	Raven Ducks. Pieces. 77,793	Flams. Pieces. 17,500	Sail-cloth. Pieces. 428	Drills. Pieces. 21,833	Linen. Arfchines. 983,588	Caviar.
Crash. Arfch. 942,728	Wheat.	Cordage.	Horse-hair.	Pitch. Pood. 586	Mafts.	Deals. Pieces. 115,486	Rhubarb. Pood. 156
Hemp-feed oil.	Soap. Pood. 496	Ox-bones.	Feathers. Pood. 519	Salt-petre. Pood. 15,857	Old Iron. Pood. 6,957	Rozin. Pood. 1,221	
Linfeed. Tchetvert. 15,744		o. I. selling in the	* The Pood co	nlists of 36 lb.	wolker Georgia	Wheel To	

B. 50

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## I N D E X

TO THE

# INTRODUCTION.

SADA ALXANDO V. panggapananagar	Baltic sea, rather a gulph - page	LXXXIV
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